THE BUILDER
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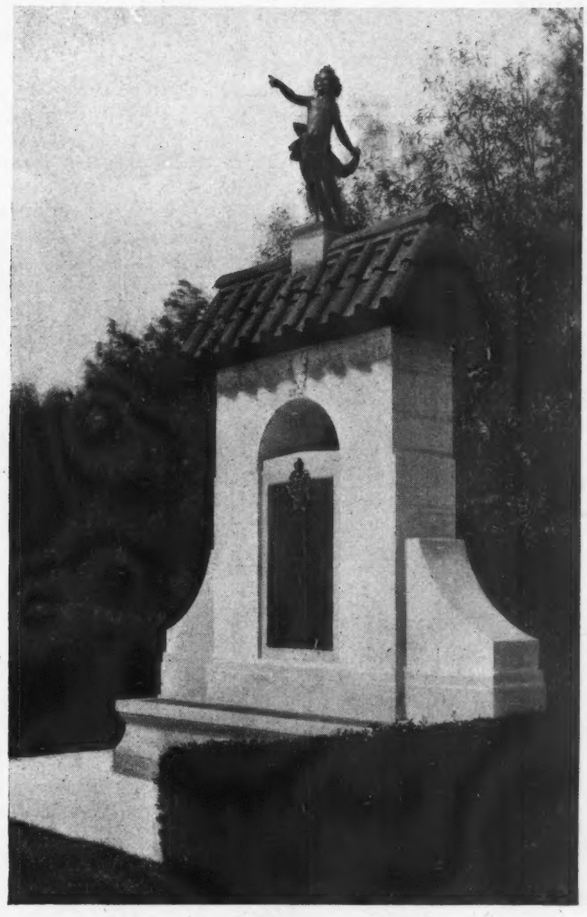


THE MEDMENHAM FERRY MEMORIAL, MARLOW.

This memorial was erected by the Trustees of the late Lord Devonport to commemorate the successful efforts made by him to maintain the ferry rights for the public. The memorial was designed by Sir Edwin Cooper, A.R.A., while the sculptor was Mr. C. L. J. Doman. The building work was carried out by Messrs. Foster and Dicksee, Ltd.

MEETINGS

FRIDAY, *January* 10.

Institute of Welding (*Midland Branch*). Mr. J. A. Dorrat on "Atomic Hydrogen Arc Welding and its Applications." At the James Watt Memorial Institute, Birmingham, 3. 7.15 p.m.

Chartered Surveyors' Institution (*Berks, Bucks and Oxon Branch*). Dinner and Dance. At the Great Western Hotel, Reading. 7.30 p.m.

SATURDAY, *January* 11.

Scientific Society of the Glasgow Royal Technical Society. Mr. J. Orr on "Investigations in Electric Arc Welding." 7.30 p.m.

MONDAY, *January* 13.

Royal Institute of British Architects. Award of Prizes and Studentships. A Criticism by the Hon. Humphrey A. Pakington on Works submitted. 8 p.m.

Architects' and Technicians' Organisation. Professor Levy on "Towards a Rational Æsthetic." At the Memorial Hall, Farringdon-road, E.C. 8 p.m.

TUESDAY, *January* 14.

Royal Sanitary Institute. Mr. J. H. Coste on "Recent Developments in Sewage Treatment and Disposal at the L.C.C. Works." 5.30 p.m.

Institute of Welding (*North-Eastern* (*Tyneside*) *Branch*). Mr. T. F. Scott Glover on "Testing of Welded Joints with Special Reference to X-ray Testing." At Neville Hall, Westgate-road, Newcastle-on-Tyne. 7 p.m.

Institution of Civil Engineers. Messrs. Duncan Kennedy and H. E. Aldington on "Royal Dock Approaches Improvement, London." 6 p.m.

Chartered Surveyors' Institution (*Scottish Branch*). Mr. C. S. Williamson on "Law Relating to Land." At "The Gordon," Gordon-street, Glasgow. 7.30 p.m.

WEDNESDAY, *January* 15.

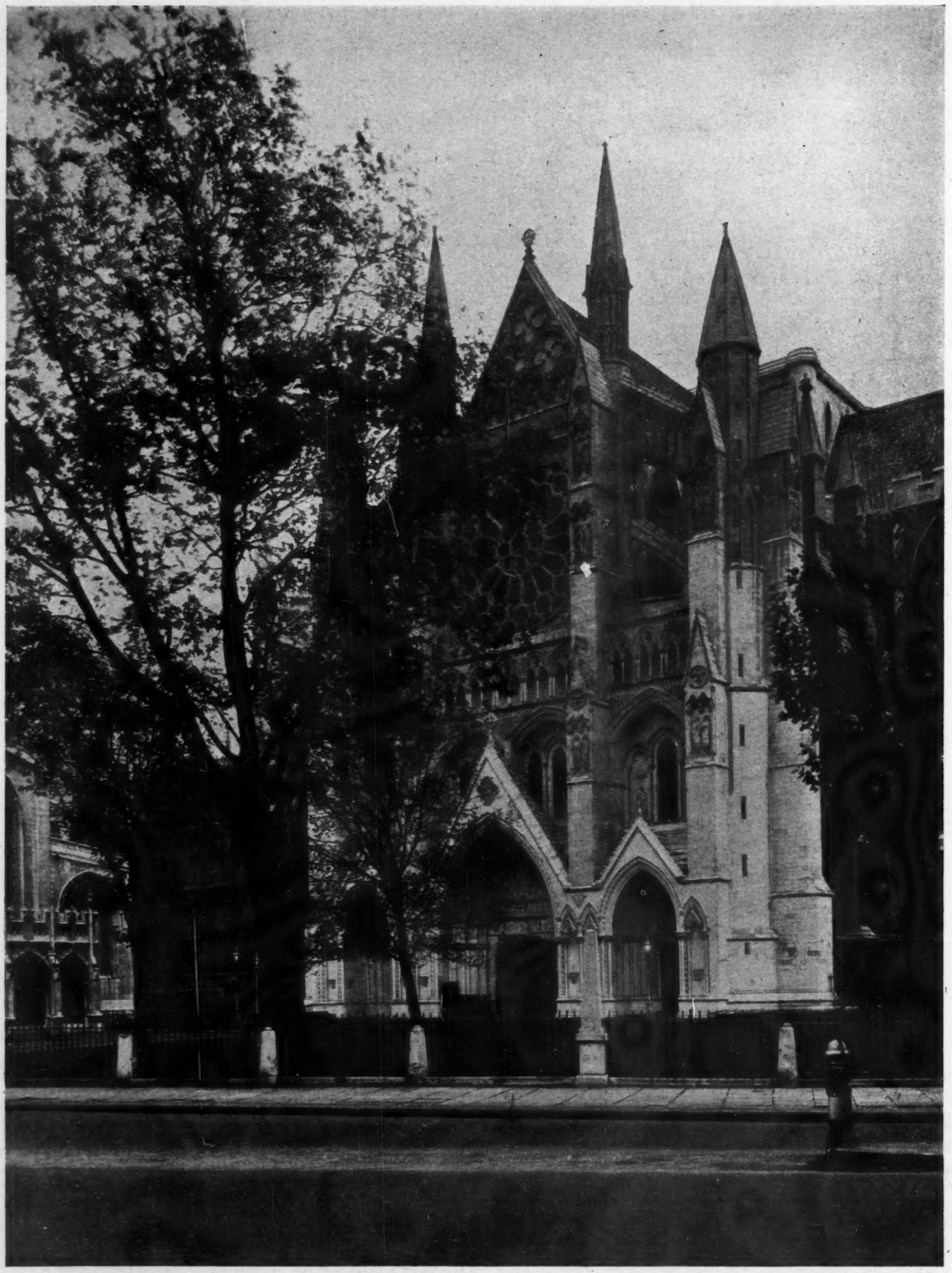
Institution of Structural Engineers (*Scottish Branch*). Mr. S. Smith on "Foundations." At 129, Bath-street, Glasgow. 7.15 p.m.

Chartered Surveyors' Institution (*Lancashire and Cheshire Branch*). Mr. R. C. Walmesley on "Ribbon Development." At the Constitutional Club, Manchester. 5.30 p.m.

Institution of Heating and Ventilating Engineers (*Birmingham and District Branch*). Annual Meeting and Dinner. At 95, New-street, Birmingham. 6.45 p.m.

THURSDAY, *January* 16.

Southern Counties Federation of Building Trades Employers. Annual General Meeting and Luncheon. At the Grosvenor Hotel, W.1.



THE NORTH TRANSEPT OF WESTMINSTER ABBEY, AFTER THE RECENT TREATMENT WITH LIMEWASH.

(See page 46.)

THE NEW YEAR

ANOTHER milestone along the road of time provides an opportunity for retrospect and resolution. The occasion is one for some satisfaction to those interested in the building industry, though still one of some anxiety to those who desire to see more clearly into the future. The figures of building activity seem reassuring, and have been, in fact, remarkably favourable throughout the long slump period from which the country seems to be emerging. It was only to be expected that activity in the commercial and luxury fields should have been seriously curtailed, but on the face of things this deficiency has been largely compensated by an intense activity in small house building, which has persisted year after year with but the faintest signs of diminution.

The figures, however, are not a fair index of the real state of the building industry. It is true that they show conditions favourable to the labour market, but that they should be taken as an earnest of a future stability is probably assuming too much. A combination of circumstances has conspired to make house building a profitable field for the speculator—in fact, one of the few remaining fields at a time when cheap money is plentiful and commercial confidence at a discount. The building societies have found in the chances of the times an opportunity for distributing their accumulations of capital, and we may be excused for reading into such circumstances an artificial stimulus to one branch of industry, which may not be correctly counterbalanced in the economic scheme of the nation.

There is a fear abroad that the house shortage is on the verge of changing into a glut, and that the momentum of a headlong movement may not be checked until that glut becomes a real menace to the health of the building industry. We are not, however, prepared to resign ourselves to such an unhealthy foreboding, and we are convinced that though there is undoubtedly a problem underlying this sequence of events, our energies must be exerted towards correcting any evils which must follow from haphazard enterprise.

To a very large extent the commercial and industrial activity which we firmly believe will gather renewed strength during the coming year, must bring with it such a movement of population from one area to another that building activity, even in the small house class, will continue in some measure without risk of loss of equilibrium. Such demands upon the trade must be made possible with greater caution than has been hitherto the case, and we must bear in mind the interests of those property owners whose house property seems to have lost a market in the more ready supply of a more modern type. These property owners must not sit down and bewail their losses, for there is much that they can do in a constructive way to adjust the situation more favourably to themselves. There are a great many houses upon the market which are too big and indifferently equipped for the scheme of living which the small middle-class family has been forced to adopt. A little ingenuity is needed to plan out a sub-division and re-equipment of such properties, to respond to the new scheme at an economical rent. Our architects are the men specially trained to meet such situations in an ingenious and economical way, and there is hidden under the slate roofs of Victorian derelicts a new field of enterprise and experiment which should be profitably explored. In such a direction the architects stand to gain a new field of activity to compensate them for the loss of that wide field of new small house building which has been to all intents and purposes lost to them, not only in the immediate past, but for a generation ahead. The owner of old-fashioned property also stands to gain, and to the community at large there should be a gain of rates lost for a term through vacancies.

We have occupied a considerable space in our review of the present position with the subject of small house building, because we have always been convinced that this is a subject of an importance quite disproportionate to the smallness of the unit in question. We do not suggest that those further small houses which must be built in the near and distant future should be left to the unworthy chances which have governed this development of recent years. On the contrary, we should welcome every sign that the architectural profession and the more substantial type of contractor were entering more fully into this class of building. But we must not blind ourselves to the fact that the market will not continue as an inexhaustible reservoir in supply.

The past year has been marked by a number of new schemes for council offices and municipal buildings. As we have pointed out previously, this is also a sign of the times in that it marks the permanent establishment of the larger unit of local government. We can congratulate those successful architects who have produced these schemes to the credit of the communities for which they stand, and we see in this class of building a sign of steady sanity in the real modern architecture by which we shall be judged in the future.

We have also remarked upon the manner in which the Modernists appear to be adjusting themselves more politely to the conditions of the times. The public has made it very plain that it does not favour the Continental importations which have been planted upon us as the last word in advanced architecture, and together with this pressure of public opinion have come certain reminders from nature herself that traditional building principles cannot be lightly disregarded. Those of the advanced school who have the steadiest heads, have recognised these hard facts and are leading others upon a more acceptable path.

It would be a grave omission from such a review as this if comment were not made upon the new President of the Institute, Mr. Percy E. Thomas, O.B.E. Mr. Thomas is the second provincial President since the War, and at the same time the youngest President in the same period. He has commenced his term of office in an energetic and constructive way, and has already reached the ear of the general public in his campaign for a fuller recognition of the purpose of an architect. His appointment, therefore, marks two important principles of professional organisation, namely, the right of the young man to a proper share in the administration, and the need for a wider representation of provincial opinion. We wish him a continued successful term of office, and have no fear that he will disappoint those who elected him.

It is rare that a retrospect does not contain some note of regret. The architects regret at the moment, and perhaps in a purely sentimental way, the passing of our grand old friend, Waterloo Bridge. New Year's Day passed with the structure ended as a bridge, and remaining for the moment as no more than a series of rocks in the river. The bright side of the picture is that the new bridge which is to take its place has been designed by one of the most accomplished designers of the times, and we can rest assured that it will not disgrace the generation to which it will owe its existence.

Finally, may we wish all our readers a full return to prosperity and a year of architecture which may be the first of a future permanent prosperity. We intend no startling change in the form of *The Builder* during the coming year. This is no disregard of the need for progress, but *The Builder* represents our conception of progressive architecture in that we see no need for radical change so long as the old forms continue to fit the circumstances.

NOTES

The New Year.

EACH New Year leads us to the brink of the unknown. Yet, as the future is much what we make it, it depends on us as to what it shall be. It is true that we inherit the past, and its influence will not be without force to determine the future. But there is something at the beginning of each New Year that leads us to take note of the past, and if this leaves us with an outlook not without anxiety and concern for the future, we should examine the reasons for this more closely and set about the remedy. For life is a perpetual seeking, and it is not true that what has been must always continue, unless man is no longer master of his fate. To such pessimism we should oppose the most direct challenge, for it is for us to shape the future to the increase of human well-being lest events govern us, so that we no longer know whither we are going. What, then, are the ideals that should inspire us? Surely the increase of self-knowledge, the reconciliation between the things that divide us, and greater consideration for the "other fellow," the love of nature and art, and the spread of their ameliorating influence so that they may embrace life more fully. This will do more than political change, as it leads to the tranquillising and freedom of life. Past, present, and future are one whole in which we live, and it is on what is due to these three that the prospects of mankind depend. Let it be the contributions of each one to assist towards this end.

A Ministry for Art and Industry.

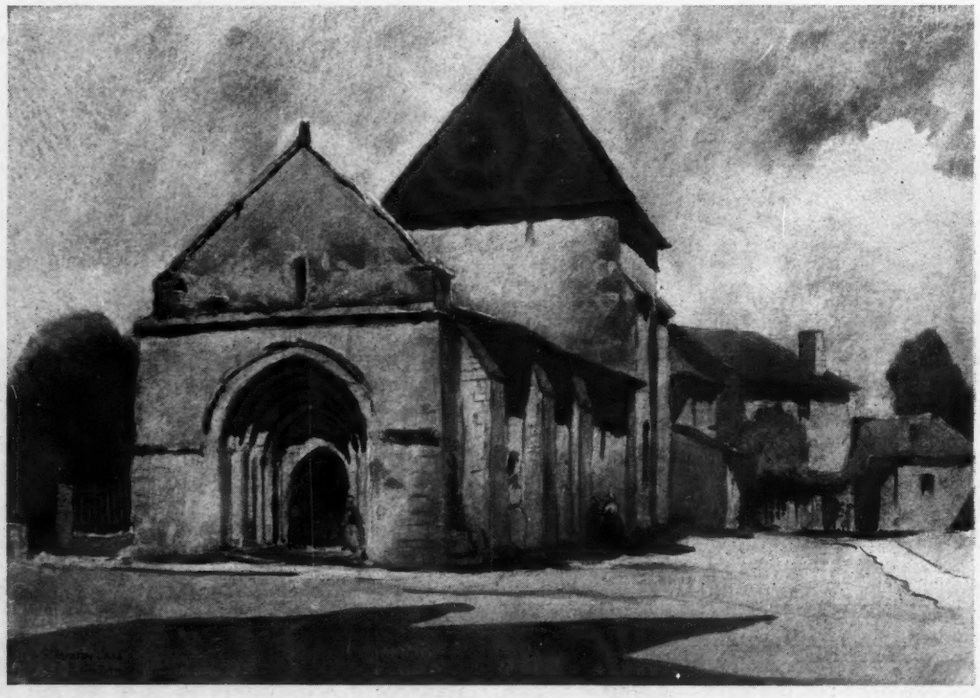
OF new prescriptions to cure the ills of fine art and industrial art there is no end. To look back over the period since the Great Exhibition of 1851 is to observe one organisation following another to promote art in Industry—that shy goddess so difficult to propitiate. Can we reform art through so much seeking? Yet we see from recent correspondence that it is a Ministry for Art and Industry which is again proposed to effect this desired reformation. Such is the hypnotism, the tyranny lying in words, that it is possible in this way to obscure the real nature of the problem, which lies not merely in a change of title for the same old outlook, often the same persons, but in one that reaches down to the real issue, which these protagonists of new organisation so persistently ignore. For may it not be that the fault lies in ourselves, and in the conduct of industry, in which the freedom and happiness of the craftsman and the worker has been conceded to the machine?

Machinery to Help Art.

WHAT would the Ministry secure for us, unless it be that the views of its officials are to prevail as to what is good in industrial art? Under such an authority there is danger that the best work would come under the "Index." Leaving aside for the moment the consideration whether to talk of industrial art has not in it something of contradiction, may it not be that tied by such authority, with standards set up of what is becoming, to which the more pliable will most easily conform, the results may be more disastrous to the freedom of the arts than any neglect? The path of art is strewn with the wreckage of such good intentions, though we are not concerned to doubt the sincerity of those who hold them. We must look beyond machinery, experts or Ministers to understand that a nation will probably get the art it deserves, and that when we care for it enough we shall achieve it, and the fault lies in ourselves in not yet doing so.

The Church of the Holy Sepulchre.

MR. WILLIAM HARVEY, nominated by the British Government, has just issued his report on the dangerous condition of the Church of the Holy Sepulchre, Jerusalem, the most important structure to Christendom in the world. It is built on the supposed site of Calvary and the tomb of Christ. It presents as difficult a problem as the most skilled architect may expect to find, in the handling of which structural and remedial skill, as well as acquaintance with religious traditions, are some of the qualities required. At least six religious bodies are directly concerned. Mr. Harvey has not hesitated to make drastic proposals. The dome of the church was cracked by an earthquake, and the architect reports that the thrust of the dome has pushed the walls outward. He proposes the substitution of a cone. He would cut out decayed stone in the fabric and remove modern work inappropriate to the original design, which he would restore as far as fragments *in situ* and old drawings indicate. When one recalls the love of devotees of every altar, niche,



ST. MARTIN L'ARS, SOUTH OF POITIERS.

From a Water-colour Drawing by MR. E. GUY DAWBER, R.A., P.P.R.I.B.A.

WATERDEN CHURCH, NORFOLK.
From a Drawing by MR. J. R. LEATHART, F.R.I.B.A.

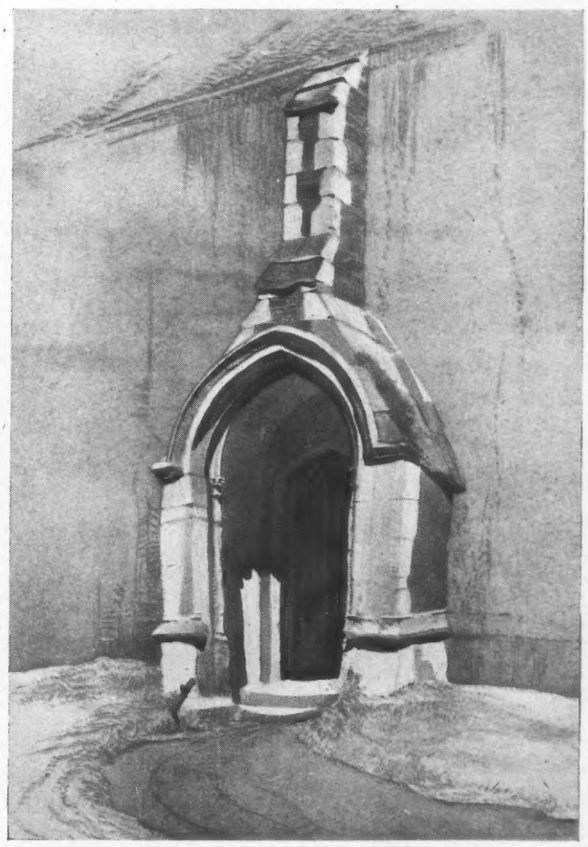
chapel, symbol and vessel, as well as of the building *in toto*, the difficulty of conciliating all views is revealed. Nothing material is imperishable, not even granitic rocks. So the restoration of old buildings means, with the lapse of time, the renewal of the whole. Religious veneration is amongst the most persistent characteristics of mankind, yet ruined temples and monasteries are silent witnesses to the changes of view that time brings.

The Old Waterside Houses at Whitby.

To any person acquainted with Whitby and its waterside, from which these old houses are seen on the opposite shore, the proposal for the mass demolition of such an outstanding feature is hardly believable. The view of this old fishermen's quarter, which climbs up the cliff-side, is perhaps unrivalled for picturesque beauty, its houses pantiled and of weathered red brick, well built and of considerable architectural interest. Whether seen from the ancient church above, which crowns the cliff, or when ascending by the old stone stairway which leads up from below, its delightful ancient character has given pleasure to thousands of visitors and is a primary attraction to many visiting Whitby. The houses are soundly built, but needing repair and conveniences. This work, under responsible architectural guidance, could be carried out without loss to the traditional features. We are glad to note that in a recent appeal case in regard to one of these old houses condemned through the Council's demolition order, the judge, Sir Reginald Banks, allowed the appeal, stating that after repairs the house would be better than many Council houses he had seen. And it is interesting also to record that at the Council meeting a proposition to save the old houses was only lost by one vote. In view of the rapidly growing public opposition to the scheme of demolition, and the narrow margin of the vote, it seems clear that the Council's decision should be reconsidered, and we hope the Ministry of Health will intervene to secure that what, even though well-intentioned, is an act of pure vandalism, shall not be proceeded with.

Supervision and Protection.

In the course of a letter on this subject, Mr. Nelson Dawson points out that, in France, all old houses and towns and buildings are ancient monuments, and no owner or other person may move a least bit of them without the permission of the State. We must, of course, rebuild the slums, but the houses at Whitby are not slums, but dwellings to which the fishermen are attached as their traditional home on the waterside for centuries. As the writer of the letter states, "There is, of course, and inevitably, here and there a house which is not so well kept, but in such case the Council probably have by-laws that would meet the difficulty." That such a beautiful and outstanding feature as this old town of Whitby should be thus threatened points to the need of much wider supervision and protection of traditional buildings



SOUTH CHANCEL PORCH, WARHAM ST. MARY, NORFOLK.
From a Drawing by MR. J. R. LEATHART, F.R.I.B.A.

in this country, and, as Mr. Dawson suggests, it might even be possible to declare the old town a "national monument" and by this means save it.

London Housing and Transport. Some figures and forecasts that give rise both to interest and apprehension are contained in a summary given in this issue of a paper read recently by Mr. Frank Pick, of London Transport, before the Royal Society of Arts. Mr. Pick, in making reference to the difficulties which beset the London Passenger Transport Board, drew attention to a subject which has often been raised in these columns—the lack of cohesive planning control in Greater London. "Local administration and its related public utility services within the area served by the Transport Board are in the hands of 353 autonomous or quasi-autonomous bodies," says Mr. Pick. "The central government, in a policy of despair probably, manages the bulk of the police force and interferes in road planning and construction to induce some collective action and scheming. Town planning, so called, does not exist at all. What goes by the name is almost idle and useless so far." The lack of some form of unifying control has been responsible, it appears from Mr. Pick's paper, for increasing the difficulties of a transport system which has to cater to the needs of an area covering 1,986 square miles, with a population of 9,500,000. In the planning of new housing estates, says Mr. Pick, "all is accident. Large populations are dumped down in places where transport facilities are inadequate and unsuitable, as for example, at Becontree, where 115,000 people have been congregated on one housing estate, equivalent to, but never able to be, a fine town in itself, and certainly not designed as a town with the institutions and amenities of a town."

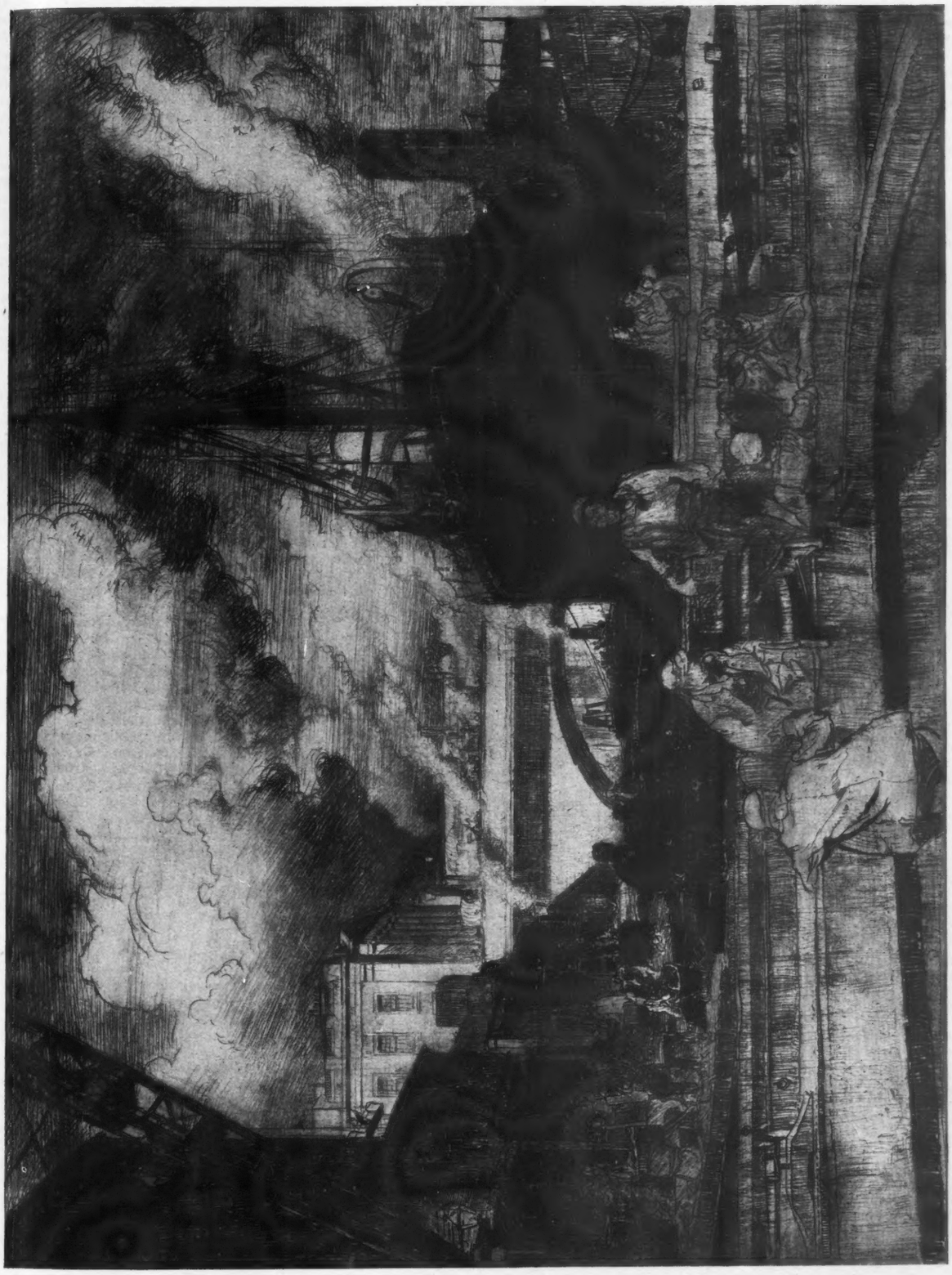
The Need for Central Control. Such developments, in Mr. Pick's view, are "analogous to cancerous growths. As a consequence, vast sums of money, more than would ever be wanted under a planned expansion, must now be sunk in a scarcely remunerative enlargement of the transport facilities, pointing to the conclusion that with transport unified and co-ordinated there will still be no acceptable solution of this Metropolis, unless the unification of other essential functions keeps equal pace." This enlargement referred to is the Government's proposal to spend £40,000,000 on improvements in the London area. Though welcome in themselves, it is alarming to learn that when the works are completed, they will demand an additional annual 120 millions of passengers, equivalent to an additional population of 750,000 persons to repay interest on the capital. Where are these new thousands to be disposed? If on the same casual procedure as has produced the present situation, then in ten or twenty years a fresh scheme of reconstruction will be necessary, at a cost compared with which the present £40,000,000 will appear low.

BOLINGBROKE MILL, LINCS.
From a Sketch by MR. E. B. MUSMAN, A.R.I.B.A.

The British Steelwork Association. At the annual general meeting of the British Steelwork Association held at Caxton House on December 19, Mr. H. B. Jacks, O.B.E., was re-elected as President, and Mr. E. Boynton, M.I.Mech.E., and Mr. A. Veitch as Vice-Presidents. As a consequence of the affiliation of the Bridge and Structural Steelwork Industry to the British Iron and Steel Federation, certain modifications of constitution will be required to conform with the progress of the general reorganisation. To this end, negotiations are now in progress as to the best means of continuing and strengthening the co-operative work of the British Steelwork Association on propaganda and market development. The Association was formed in 1929 as a service organisation of the trade, and has achieved a notable success in promoting the welfare of the industry.

Old Waterloo Bridge. The interest in old Waterloo Bridge continues. In our issue for November 8 last, we published a snapshot of a baluster of the bridge that had been acquired by a correspondent and set up as an ornament in his suburban garden. This snapshot caught the eye of a correspondent in Vancouver, who writes to inform us that the Jubilee of that city is to be celebrated this year and that plans are being made for the setting up of some suitable memorial, in which, our correspondent suggests, one of these balusters might be incorporated as "a link with London." We trust it is not too late for him to secure one. This incident is further evidence of the great interest that is still taken in the old bridge, even in remote parts of the Empire, where its fragments are held in greater esteem than was the entity itself by its appointed guardians.

Westminster Abbey. On page 42 will be found a view of the North Transept of Westminster Abbey. The front of this transept has recently been washed down and coated with lime-wash, and those who have seen it must be impressed with the change, and especially by the added sense of lightness and luminosity. This is, of course, not the first time that lime-wash has been used at the Abbey, as the Henry VII chapel was similarly treated several years ago. The late W. R. Lethaby, it will be remembered, was an advocate of the virtues of lime-wash as a preservative, and it will be interesting to see whether the entire structure will thus be treated.



AN ETCHING BY MR. FRANK BRANGWYN, R.A., IN THE STUDY OF THE KING'S HOUSE, BURHILL, SURREY.

(See pages 93 and 100.)

THE TREND OF ARCHITECTURE

By PROFESSOR A. E. RICHARDSON, F.S.A.

To attempt to describe tendencies in current architecture is to invite a storm of censure, but a few unbiassed notes may be acceptable. It can be regarded as an axiom that profound analysis is the surest safeguard against impertinent comparisons. This connotes the difference between professional criticism and the broad view which accrues from experience of everyday practice. Architecture has been variously discussed: as a science, as an art, and as an accomplishment. Rarely has it been described as a concrete statement of the imagination. Yet it is the means by which novel arrangements are dramatised and presented to the human mind. When architecture is tempered by logic and clear thinking, it is capable of an appeal which is universal. Intelligibility to the minds of ordinary mortals, therefore, should rank as the criterion of its successes.

Throughout centuries of endeavour, despite local habits and customs, continuity of technique has been maintained. Those who express contempt for principles of structure cannot be expected to value anything serious. The materials out of which architecture is brought into being, lie deep and are spread wide. The possession of a point of view which is catholic and above the cumbrous mass of things should be the aim of the student. There is not a single thought or idea that has been tried out that is not a fit subject for discussion. The impression that a building is something out of the ordinary is conveyed to the eye by the exquisite perfection which is the all-pervading quality of every part.

When the late Professor Lethaby once spoke of the art of the Middle Ages, he said: "The folk fell in love with building." There was nothing idle in this remark, for the Professor described what actually took place. Architecture, therefore, is an art which records in permanent form that veneration of the beautiful which is part of human culture. It is clear also that the form of buildings, the shape of utensils, the patterning of materials, and the composition of ornamental surfaces has resulted not from chance but from predetermination working in slow time. There is no greater proof of this aphorism than that afforded by the Exhibition of Chinese Art. Here is to be seen a phase of continuity in art energy which does not date and before which the mists of fashion fade into nothing.

The chief difference between the art of the world to-day and that which is called historic art should be noted. Formerly things were gathered more into masses; scope was allowed for greater and more intensive art energy. Architecture, in particular, was a thousand men deep in every great city. To-day it is registered and chartered "ten thousand deep," but flourishes only where results are unannounced and where men are in earnest. Cinderella sits by the fire while the ugly sisters flaunt their flood-lit make-up.

Such thoughts heighten the strange contrasts of to-day and engender reflections on the seeming confusion of things. From this review arises yet another thought, namely, that extreme points of view are dangerously insincere. It is difficult, for instance, to accept the theory that concrete and glass are the only materials worthy of consideration in these days of progress. Under certain conditions these materials are desirable, but the claims of structural design admit of the use of brickwork and masonry. In Paris and New York, steel-framed buildings are returning to favour, and even in England recent surface treatments conceal the bones of structure. With such facts before our eyes it is apparent that fashion is still a compelling force in some directions.

The broad view, which is the only one compatible with an intelligent appreciation of realities, classifies recent English buildings into groups representative of real attainment. There is undoubtedly a very vital architecture in being; one, moreover, distinguished by accomplished planning and skilful construction. The reverse of the medal is to be seen in the exploitation of sites in town and country, and the mass production of nondescript buildings devoid of charm or common sense. During the past twelve months additions have been made to groups of Government buildings; new hospitals have been erected, new blocks of offices, new colleges, churches, new halls, roadhouses, blocks of flats, cinemas, museums, garages, warehouses, and housing centres. A very determined push has been made to rid great cities of slums. The period of bank building on the monumental scale has been succeeded by activity in erecting flats in every part of the older suburbs of London.

As was to be expected, an additional burden has been thrown on to the officials responsible for administering the Town and Country Planning Act. It is to be hoped that delay in approving schemes will soon be overcome. There is no doubt at all that great advances have been made in simplified construction and planning. There remains, however, the need for extreme caution in the preservation of amenities and the retention of residential areas which are charming in themselves.

In this age of talking and arguing, scant attention is given to the actual doers, the reason being that so many are eager for notoriety and instant success that they dote on foreign exemplars while ignoring their own surroundings. The accumulation of knowledge culled from abroad has been so great through this and that as to obscure and dazzle the tyro. "What remains untried must first be visualised through Teutonic eyes." What is the use of doing anything if we have to wait for a pattern-book of modern-looking motives? From close observance of recent architecture in other countries, from Seville to Stockholm, it is only fair to say that collectively the best English architecture is very good indeed. It is a mistake to say that there is no talent in this country or that genius is not in sympathy with the spirit of the times. The vices of fashion, of fancy, of extravagance and prejudice are among the enemies threatening English architecture. This, of course, refers to the legitimate side of architecture. Those aspects of building which embrace pseudo-engineering, speculative jerryism and modern-looking glassism demand a systematic campaign from the learned societies.

The thorns, briars, weeds and tangled growths of the semi-architectural backwoods indicate the real line of clearance, not arguments and backchat as to this or that in "Arty" parlance. The Royal Academy must be considered as the main connection between the acts of a former period and the existing generation. It is a tribute to the steadying influence of the members of this august body that competition among exhibitors to show each year is so keen. The tendency of the Academy is to correlate old and new, to encourage events in art to happen surely.

Sir Edwin Lutyens and Sir Giles Gilbert Scott are among those who have secured praise from every section of the public. Sir Edwin Lutyens' work at Delhi is too well known to be redescribed. Sir Giles Gilbert Scott is gifted with the ubiquitous skill of being equally facile in the designing of cathedrals, bridges or breweries. In this latter regard the new Guinness brewery at Acton is a masterpiece in brick. The new flats in Lowndes-street by Sir John Burnet, Tait and Lorne are pleasing additions to this centre. It is of interest to hear that Mr. Curtis Green is engaged upon a group of Government offices; that Sir Herbert Baker's work at the Bank of England is progressing; that Mr. Guy Dawber has completed some remarkably distinctive country houses in brick and the important Lord Wandsworth Agricultural College. Sir Edwin Cooper's reconstruction of "Gatton Park" recalls commissions that once fell to the lot of the late Mr. Norman Shaw. Further, Sir Edwin has been completing St. Hilda's College at Oxford. Mr. Arthur Davis, in spite of a prolonged illness, has been able to supervise the designs for the decoration of the liner *Queen Mary*.

The Royal Academy, through the activities of its architect members, its exhibitions and its prestige, is not only a steadying influence on architecture but inspires public confidence. It is left to other societies, less austere, to break conventions and to disappoint public expectation. The public interest in architectural matters is not always so lax as it is supposed to be. In glancing back, without undue regret, at the great period of the past, one cannot help admiring the general high level of ordinary building. The vernacular style of the eighteenth century was very good indeed. Truly, things were "gathered into masses," progress was slow but eventful. To-day it is left to the skilled architectural staffs of His Majesty's Office of Works and of the London County Council to create modern traditions which are acceptable. It is strange to think that the historians of the future will have to refer to the works of official departments as being more representative of the period of to-day than the warring elements contributed by those in private practice.

The blocks of L.C.C. flats on the East Dulwich Estate, designed by Mr. E. P. Wheeler, F.R.I.B.A., and those on the Bow Bridge Estate, are among the finest of their type. The adjustment of the balconies to the various sub-groupings should be studied. His Majesty's Office of Works has likewise contributed brick-built labour exchanges and post offices in various parts of the country. The policy of observing local traditions of material and of motive cannot be too highly praised. The largest work—the new Museum of Practical Geology—was finished in May last.

Among the many blocks of flats erected during the year, those by Mr. Robert Atkinson, at Regent's Park, have a dignity and restraint which is far from common to-day. The new Students' Union at Liverpool University, by Professors Reilly and Budden and Mr. Marshall is the only architectural school rebuilt on up-to-date lines in recent years. Civic architecture includes the new Municipal Assembly Hall at Worthing, by Mr. C. Cowles-Voysey; the new Town Hall at Hornsey, by Mr. Uren; and Mr. Maurice Webb's new Guildhall at Kingston-on-Thames. The completion of the south-west wing of Bush House has passed almost unnoticed, yet this is among the best examples of unified street design.

Outside London the following buildings repay inspection: The first, the new Foundling Hospital at Berkhampstead, by Mr. J. M. Sheppard; the second, the new Central Fire Station at Birmingham—another good example of official architecture. New collegiate buildings include University College, Southampton; the rebuilding of Ripon Hall, Oxford; and Somerville College Chapel, Oxford.

Cinema architecture now occupies the attention of a coterie of specialists, recalling the great days of theatre design thirty years ago. Such examples as the Warley Cinema at Birmingham, by Messrs. Satchwell and Roberts; the Granada at Bedford, by Mr. Benslyn; and the Regal at Highams Park, show the care and artistic skill which is now devoted to this specialised branch. The modern factory is seen at its best in London's new factory avenue—the Great West Road. Here concrete and glass reign supreme in a proper environment. The Hoover and Hooper factories are representative of large buildings, while the diminutive County Perfumery building stands for charm.

Having given a brief summary of important buildings, we may suggest some conclusions. The search after perfection in architecture is the issue that inspires youth, but it should not be forgotten that

it is also the very passionate occupation of middle age. When we look around we are thankful for the diversity of architecture: grateful that all is not produced according to one formula. We travel to get ideas. Why not? We find the French logical in their works; the Swedes and the Danes austere and restrained; the Germans eager to accept the discipline enforced by machinery. The Spaniards, on the other hand, have accepted the business enterprise of their former South Colonials in America. In Italy the old characteristics peep out in a classicism which is nudist.

In England we remain practical and ready to compromise. We have inherited a love for the country and for the fireside. We have the legacy of London and its narrow and crowded streets. We have all the discomforts consonant with a large population and neglected agriculture. We have command of the world's wealth and luxuries. We are a comfortable, rich, powerful people, not intuitively artistic like the French, but rather inclining to the Gothic and grotesque. Hence the acceptance of strange and unusual forms of building without much protest. Hence the happy experience of those foreigners who enjoy our hospitality, and try to convert us to their way of thinking.

You will ask: Why is the Art of Sweden so clear and the Art of England so crowded and overcharged? How often we forget the effect of the enormous population, the swarms that are domiciled in mounds like ants, that live and move and think in masses. The average student of design does not consider these things: he fancies that novelty of form will provide a remedy for all that is bad. He is encouraged to use substitute materials in order to bring about a purification of taste. A philosophy of architecture, of art, of life—of everything—is required.

The truth does not exist in the pursuit and achievement of novelty of form, but lies lower down. It is associated with the structure of society itself; it is bound up with economic laws, with social forces which defy legislation, each group of people seeking something different. How right the late Professor Lethaby was when he reproached an architect by saying, "Few brains in England realise the way architecture is drifting."

Yet within certain limits architecture does flourish, and will beget greater architecture. It is for the artist, the scholar and the philosopher to check the chaos, to hearten and to cheer those who toil on Pisgah.

THE REBUILDING OF QUETTA

The Government of India have announced their decision to rebuild the city of Quetta, which was destroyed by earthquake last May. The cost will be £6,000,000, and the work will take a number of years. "Official" Quetta is to be rebuilt as far as possible on the existing site, and earthquake-resisting buildings are to be provided for all permanent employees of the Government. It is stated that if the civil population desire to return to Quetta they must be prepared to accept the need for a better and, therefore, more expensive standard of living.

Though the whole of Baluchistan must be regarded as an earthquake area in which further shocks may be expected to occur from time to time," states a report, "the movement itself relieves stresses to which the surface has been subjected in the past, and therefore reduces the likelihood of future earthquakes in the same place." The report adds that the extremely poor quality of the buildings of Quetta City contributed to the magnitude of the disaster, while earthquake-proof buildings withstood the shock and solid buildings were not seriously damaged. Salvage operations will eventually clear the existing site, but the width of many roads will be increased and stringent building regulations will be rigorously enforced. If the population ever reaches pre-earthquake dimensions a considerable expansion of superficial area will become necessary.

Our Usual Features.

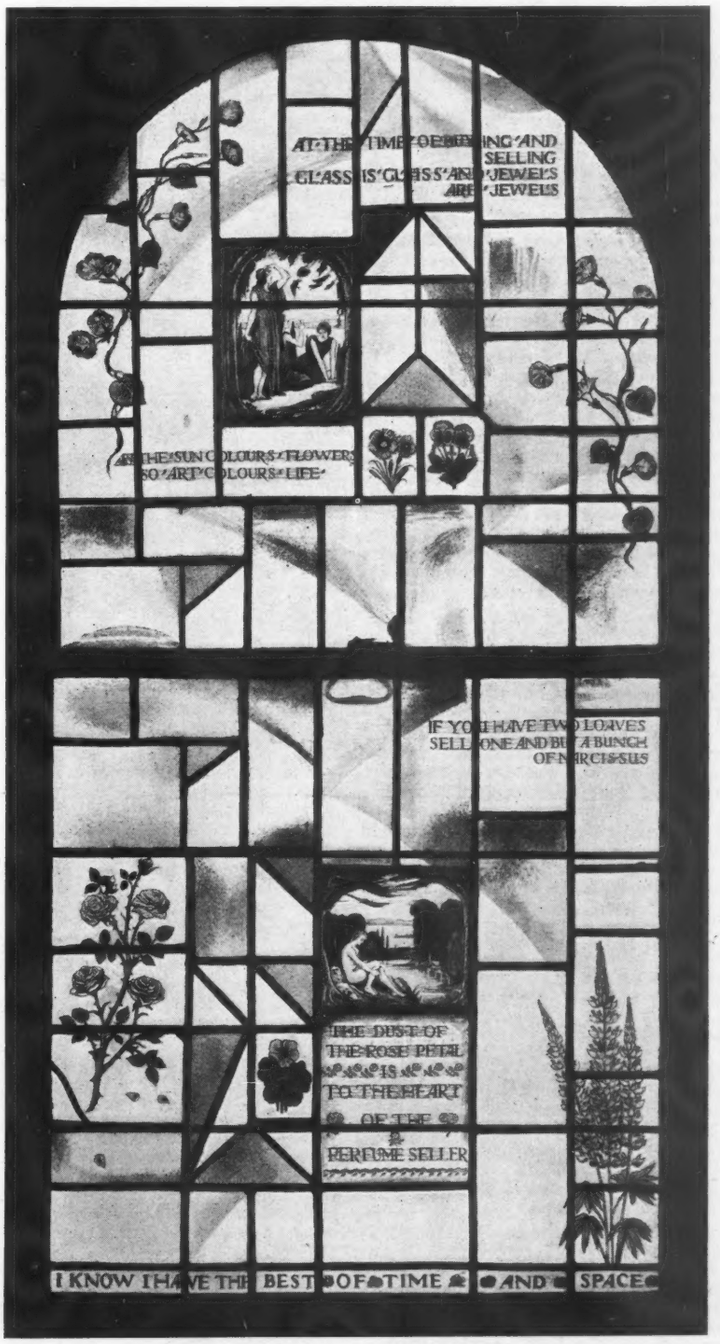
General News and Competition News will be found this week on page 101.

MODERN STAINED GLASS

By REGINALD HALLWARD.

THOUGH we should not remain fixed and rooted to the past, there should be very good reasons for departing from precedent and from ways which have over many ages proved good. At the same time, habit is so strong with us, and the practice followed of such general consent, that it may not occur to us that there is any other approach save that to which custom has habituated us. This has been the case in regard to the art of stained glass. And all this makes it difficult to appreciate the inevitable new directions growing out of contemporary developments, which seem a challenge to old and accepted ways.

Such thoughts must have occurred to many in a long practice of the art when brought up against a criticism sometimes heard, that stained glass remains only as a survival. However absurd this is, seeing the inexhaustible scope and resource in the materials, improved far beyond that of mediæval achievement, it is not the less useful to try to understand the reasons for such a view. Changes have been so rapid over the last years, the present-day outlook so altered, that it is worth while to inquire how far our work is able to interpret the new demands. In the case of stained glass, are we adapting our methods to meet new re-



A WINDOW FOR A PRIVATE HOUSE.
By MR. REGINALD HALLWARD.

Included in this window are two coloured panels of subject-matter, which suggests the scope for personal choice, whether heraldic or pictorial, to give interest to the treatment. The flower decorations of Morning Glory and Lupin are in light tones of colour—rose, orange, green and purple—set on the background of partially matted plain glazing.

quirements, or does the old use and wont still retain us? On the side of its artistry, the lack of contact with nature and fresh experience, the ecclesiastical recipe, and the old clothes of mediæval treatment, no doubt lowered appreciation, but these, though still forming a governing reason for its decline in estimation, are accounted for in the poverty of endowment among those who produced it. But in the other case, in which true artistry was not so lacking, is there not yet a disparity discernible, arising out of habit, which, in relation to modern building, leaves, sometimes, something to be desired? Does not the old use and wont too much operate against the entrance of ideas? For do we not seek the light and build for its entrance, rather than the "dim religious light" of mediæval conception—to see out from within—to link our lives indoors with outward vision, and not shut out the sky? I think there are deep psychological causes for this desire to escape from darkness and the sense of confinement. These and other differences of outlook compel us to take stock of customary treatment; both form and content needing more the direct impress of our modern perceptions, leading towards a new creativeness in the use of materials and in their adaptability to what is vital to-day.

If this were to suggest anything against rich colour and quality (which is far more a question of character than of quantity) or any lack of appreciation of fine mediæval glass, or of good stained glass of any time, it would be the opposite of what I intend to convey. But as an extension of treatment, the possibility of a new idiom for glass, and new interpretations, there is indeed a good case to be made. To-day we are looking for light, reality, freedom from the tyranny of outworn methods. Lovely as is the glass of Chartres Cathedral, it interprets its own time; we must not make a fetish of mediæval conceptions but express our own. Nor should we mistake for tradition what is no more than manner. I see the possibility in modern building for glass more identified with its own character; a new idiom, not detached from the realities of tradition but developed out of it.

There are many who must have been charmed by the beauty of the plain glazing, the well-proportioned square quarries of 150 years ago, scattered through old churches. A beautiful Cambridgeshire church which I call to mind was so lighted, pervading a sort of virginal beauty through the interior which, combined with the noble architecture, translated one into another world. Nature and art, the waving trees outside and this lovely shrine within. This was better than the enclosed feeling, the mediæval darkness, "the dim religious light." We do not live, most of us, in baronial halls, nor do we like dark interiors, and we feel somehow to-day that if the church cannot stand daylight there is something lacking in its message.

In Chartres Cathedral, all the famous glass of its period is very deep in colour, and with much accumulation of detail, so that the interior is very dark, as those acquainted with the glorious fabric well know. But there is one two-light window of the series which was altered from its original treatment to provide light for the sculptures round the ambulatory. This window was reinserted with a background of light grisaille glazing, and set in the middle of each light is a figure—the Holy Virgin in one, and the Angel in the other—all the richer in colour by contrast with the plainer glazing. Contrasting this with the dark, over-coloured glass of the nave windows, one turned to it with a sense of relief, and realised that the overcharged use of colour was a primitive apprehension, which this window I have described displaced. The late Victorians demanded "plenty of colour," as they might demand quantities of sugar in their tea or indulge in scarlet geraniums!

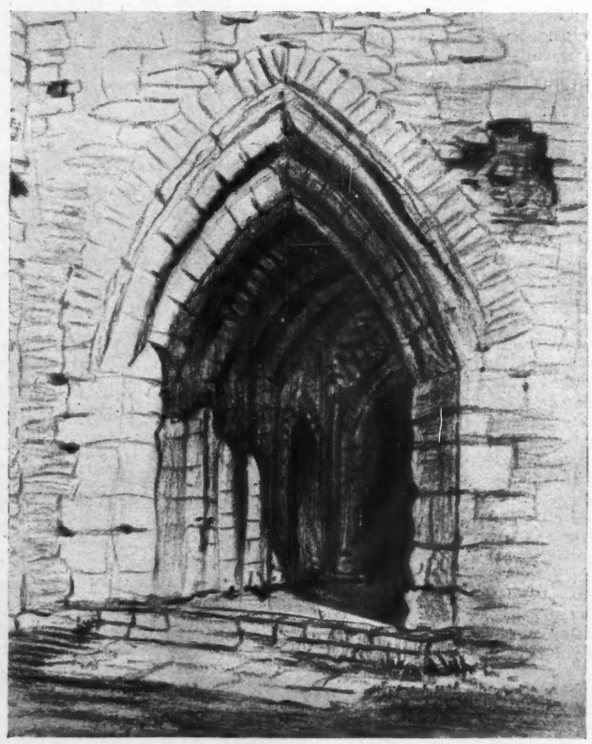
Resting in the vaulted chapel of a sequestered village church, the stately Irish yews that lined the churchyard seen through the windows, I thought what a pity to hide them out altogether, or that glimpse of the ravine revealed beyond them. For they could still peep through in a treatment in which art joined with nature a little more. Looking into the chancel, I could see the highly coloured Victorian east window which left the chancel enclosed and dimmed, and in the plain glazed windows of the chapel there was something that gave more freedom to the spirit, so answering more to our thoughts to-day.

Now in the use of enamels, or in using pot metals in such a way, we have a medium for just those additions which developed out of plain glazing, and the preserving of the light can also include decorative treatment and subject matter. I recall some windows in a domestic house of the 17th century, in which had lived an old sea captain, who, wishing to retain the associations of his sea life, had the windows of his house decorated with pictures of ships, executed in enamel colour, while little interfering with the light entering through them. There is nothing new in this, save the question that may arise in some minds as to the permanence of enamel painting, and that it was not altogether transparent. For it appears to have been the practice in much of the enamel painted glass of that period to subject it when firing to a low heat; so that the enamel was underfired, and the glass used for the purpose was often very thin to avoid the risk of breakage.

Making some experiments in the firing of enamels on to various glasses, I was able to overcome the difficulties which led to the rather limited methods of the past. Finding that in following the method of low temperature firing on thin glass the results were not satisfactory, I made experiments in the opposite direction, of high temperature firing on thick glasses, such as antique "reamy" white. The results were so much better, producing more transparency and richer colour, that I was able to secure absolute permanence, as the enamel colour was properly incorporated in the glass. It has thus become for me a beautiful additional vehicle, whether as accessory to the pot metals, or as an end in itself. I recall that in the volume on stained glass by C. W. Whall—one of the series on crafts edited by the late Professor Lethaby—reference was made, in illustrating an example of my work in glass, to effects of colour which interested and puzzled him. These effects were no more than enamels, used to add an interest of their own to the general treatment.

The illustration accompanying this article is a window executed for a private house, and an accident suggested a fresh approach for its treatment, in the following way, which may be worth describing. The glass when cut being waxed on to the glass easel, the lead line painted on the back of the glass was then "matted." After the first firing, some of the pieces of glass were waxed up again for further treatment, and in "matting" these with a "badger" the stippled colour spread beyond the edges of the separate pieces of glass, on to the glass of the easel itself. When the pieces were taken off for refiring, the "matting" which had spread over the edges remained on the glass of the easel itself, and left a curiously attractive effect when seen with the lines of leading painted behind. This, I felt, only needed to be brought into conscious arrangement to become of considerable interest, and the window accompanying this article was the result.

In a series of stained-glass windows placed in the American War Memorial Chapel near Paris, richness of colour is achieved with little, if any, lowering of the light entering through them, it being desired that this should be fully retained. In a combined use of slab glasses and enamels for the heraldic work, the light coming through the windows equalled the amount entering through ordinary plate glass. What, then, is the experience that arises out of such considerations? There is no reflection on traditional methods, nor on those who prefer to work more directly within them. What is suggested is that extension is possible beyond these, which should meet better the needs of to-day—a glass treatment less heavy in character, more in touch with the outlook and requirements of our own time. But we cannot revitalise the art of stained glass by any extension of methods in the use of materials, of which the resources were never so great, unless the feeling and the outlook are the same as those which gave so much beauty and significance to mediæval glass.



CASTLE GATEWAY, CHEPSTOW.
From a Sketch by MR. E. B. MUSMAN, A.R.I.B.A.

RETROSPECT

By EDGAR BERESFORD, F.R.I.B.A.

A SENTENCE from Professor Goodhart-Rendel's recent delightful lecture at the R.I.B.A. has been suggested as an appropriate text for a New Year's article. His subject was the work of two eminent architects, Beresford Pite and Halsey Ricardo, and in his conclusion he said: "In thinking of them both, we realise the danger we ourselves are in of becoming dehumanised with the inevitable dehumanisation of the building processes we conduct." Looking back, as most of us are apt to do at this time of the year, the older ones of us at least cannot fail to notice vast changes in architectural and building practice and aims during the last few decades. We may not all agree that all these changes are always for the better, though we have to remember that, after all, they merely reflect the general tendencies of the age, which (as, no doubt, in every previous age) the older men are prone to disparage and distrust. It is sometimes worth while to recall some of the old theories and creeds about which controversy and argument used to rage so furiously, not in any attempt to revitalise the long-dead issues, but in order to review the road we have travelled since they were to us so all-important and vital.

One of the strongest traits in architectural thought to-day—as in life generally—is the very much greater tolerance and broad-mindedness which now prevails, which acknowledges the existence of right and sincere motives behind what may appear to be wrong thinking and action: the old bitterness of controversy has very largely disappeared. We do not by any means all agree, but we acknowledge that our opponents may be as sincere as we in their own way, wrongly inspired though we may believe it to be. Is this tendency an advance? We hope so, though some may regret the loss of those intense enthusiasms which the old partisanship evoked, narrow and even bigoted though it may have tended to make us.

From Individualism to Modernism.

Again, many things in modern education and most conditions of living generally combine to make us much more versatile and cosmopolitan in all our thinking and doing. Architects in particular seem no longer to wish to identify their work with one style or idiom of design: the favourite motto now appears to be "All things to all men." Years ago it would have been easy, in visiting the Architectural Room at the Royal Academy, for example, to name the author of practically every building there shown, even though the perspective had been drawn by the same artist, for then it was the universal aim to be individual and idiosyncratic. A Waterhouse, a Norman Shaw, an Ernest George, a Voysey, a Graham Jackson, an Ernest Newton or a Blomfield building was at once and unerringly recognised. *Nous avons changé tout cela!* How impossible it is to pigeon-hole as exponents of any particular style the great majority of architects to-day! (To name only two—of our most illustrious—think of the amazing variety in Sir Giles Scott's work, of the almost bewildering versatility of Sir Edwin Lutyens!) We may carry the analogy further, and remember how only a few years ago the work of any British architect was unmistakably and inherently British in all its essential qualities, whereas much modern work here might quite well have been designed in a Continental studio. Nationality in architecture is slowly but steadily disappearing. It is rather amusing, in this connection, to note how hotly the advocates of the advanced modern style in England resent the suggestion that they are importing foreign ideas, for there is nothing new or immoral in such a practice. Many great architects of the past did not hesitate to adopt French, Italian, Dutch models as their avowed inspiration. They did, however, subtly Anglicise the ideas they imported. But to return, whether it is due to a conscious imitation of the modern Continental idiom or not, there can be no doubt that much recent British work of this type is indistinguishable from that lately in vogue in Sweden, Germany and France; and that, many of us feel, is a pity, though probably inevitable as a reflex of the infinitely greater exchange of thought and interest which is now possible between countries and cultures once far apart.

Developments in the Building Trade.

Then, consider the development of the building trade itself in the last few decades, influenced, amongst other things, by mechanical invention, by vast changes in hours, wages, conditions, through trades-union organisation, and by an astounding revolution in methods of producing and marketing materials. The process of building a house(for instance) was formerly a far more personal matter than it is now. Like the ideal conductor of an orchestra, who can himself play most of the instruments under his bâton, the average builder was generally himself a past-master in at least one of the trades he controlled: he could, when he felt it necessary, take trowel or chisel or square and demonstrate to a perplexed workman exactly how the job should be done. And, having that expert knowledge, he was wholeheartedly interested in every detail of the work he had undertaken. With the modern organisation of the trade, the master-builder of to-day need not be—and frequently is not—an expert technician in anything but finance. He buys rather than makes most of his components; his workshops are less factories than "assembly-shops"; he carries little stock of timber or other materials, but ships them direct from dock or warehouse to the building; he generally farms out most of the labour to sub-contractors; in short, his main and almost exclusive concern is to co-ordinate and to organise these various contingents to come together in the right order and at the right time. One hastens to admit that his new methods are not necessarily any less efficient than those of his predecessors; the main difference that one regrets is that he is now too often an impersonal business manager where once he was a craftsman, interested in his soul over the details of the work he was doing.

In precisely the same way, and as a result of the same influences, the architect tends largely to become less personally interested in his projects. On his desk each morning is a batch of letters from manufacturing firms offering to submit detailed schemes—incorporating the use of their special product—if he will but send them a rough sketch plan of any building upon which he is engaged. He may, if he wishes, have his drainage scheme, his special foundations, his steelwork, flooring, plumbing, heating, decoration—all designed for him, and, one is bound to add, frequently excellently designed. The days when he himself carefully and laboriously drew out details of construction and ornament, with meticulously studied full-size profiles of mouldings, may be over and done with if he so wishes. He, too, may become a mere assembler and business-manager, collecting and selecting from a congeries of impersonal units of design, striving hard, no doubt—and sometimes not entirely unsuccessfully—to blend and harmonise his various elements into a satisfactory result. But can he still claim to be the architect, the designer, of a building erected by such methods, or for how long will he be able, in a wide-awake world, to substantiate any such claim or to retain any such anomalous position?

"Standardisation for Mass Production."

We begin to appreciate to-day that the machine cult of "standardisation for mass production" is resulting in a tendency to a human standardisation caused through mass production! Educational and other influences, by aiming at raising the standard of the lowest, have concurrently lowered the standard of what might have been the highest: we are steadily becoming a "fair average" community, physically, mentally and morally. One cannot, of course, quite visualise the standardisation of humanity; that is a contradiction in terms. But one cannot blind oneself to the fact that individualism in all its forms of expression is steadily becoming less and less, discouraged and stifled on all hands by the pressure of economic conditions. For this pressure, mass-production and mechanical advances are mainly responsible, though we are told that these factors, developed and multiplied to the *n*th degree, are the only remedy for the stringency they have caused! To take only one form of individualist expression—one which is important to architects and builders—men once took an active pride and interest in the design and quality of their homes, vying with one another to express in them their own special tastes and preferences. Nowadays they have become so accustomed to accept standardised products for almost all their other needs that they are tempted to believe that they might as well live in any kind of house which is practically efficient as a shelter and economically suited to their means: taste and discrimination in the choice of a house are apt to become largely moribund. But this, we firmly believe, is only a passing phase. The traditional love of home, peculiar to Englishmen especially, will with increased prosperity once more assert itself.

The cult of the catchword or "slogan" is a typically modern obsession. It seems impossible, nowadays, to describe a house without reference to "labour-saving equipment"—which generally means the installation of some mechanical appliance which, after use, itself needs cleaning, and therefore entails more rather than less labour; "constant hot water"—which is by no means invariably either constant or hot; or "central heating," which is seldom central but generally conveyed for some distance! We refer to "sun-trap" plans—a euphemism, as a rule, for diagonal lay-outs entailing frightful internal awkwardnesses; and "self-contained" flats, for which no less suitable adjective could be imagined. In discussing the need for more modern treatment in domestic design, the strange expression "time-lag" is bound to occur sooner or later. One wonders how any intelligent and inquiring foreigner, aided by all available dictionaries, would translate this phrase?

"Pedantic Coinage of Words."

The language of the professional art critic has always been entirely unintelligible to all but his own kind, if indeed to them. The annotated programme of a symphony concert is, to the average listener, useful only when it prints the leading themes which may subsequently be whistled: otherwise its comments are, as a rule, completely beyond him. But for sheer difficulty and obliquity of language, who can surpass the writer about modern architecture? We used to be able to discuss buildings in simple lucid English, comprehensible to the average man-in-the-street. Why should it now be necessary, in Brougham's words, "to overlay our mother-tongue with a pedantic coinage of words"? We are nowadays supposed to be trying to interest the average man in the better design of common objects: here is the concluding sentence from the caption of an illustration recently published: "Despite its non-functional origin, however, the new character is not stylistic, because it is only the result of unselfconsciously conforming to the contemporary design vocabulary." If we are to recapture public interest in architectural or any other design we must relearn how to describe our efforts intelligibly.

With all these changing influences in the world, there is still valuable and important work for architects to do if we accept our opportunities. But, to take an analogy from the machine-shops, we must not be content to be cogs in the wheel or even machine-tenders: we must see to it that we remain pattern-makers!

THE BUILDING INDUSTRY IN 1936

By H. B. BRYANT.

THERE appears to be every reason to expect that trade and employment in the building industry during the forthcoming year will be maintained at a level not too far below the record of 1935, or, as *The Times* put it in a recent leader, "the building industry as a whole will be able for many years to continue *to exert its pervasive and beneficent influence upon industrial recovery.*" We can accept at least the latter part of that statement as the very essence and hallmark of truth. It represents the goal, as it were, of the gospel which the Building Industries National Council has preached since its inception. The widespread acceptance of this truth means that more than ever the building industry has come to be regarded in enlightened circles as —again in the words of *The Times*—"an industry which, by common consent, is one of the key industries of economic recovery and which is now actually the largest industry in the country."

What precisely does this truth mean to the industry? It means in the first place that there is a direct industrial responsibility resting upon it, the terms of which can only adequately be expressed in degrees of financial and industrial organisation. In the second place, it means that over and above its purely industrial responsibilities there is resting upon it the largest possible measure of ethical responsibility to those directly and indirectly dependent upon it for their livelihood, as well as to the whole community.

Increase in Turnover.

As to the first form of responsibility, the necessary line of development is fortunately clear, and is to some considerable extent recognised generally in the industry. The industry, largely by means of its inherent economic virtues and in accordance with its own ideas of industrial expansion, formally agreed and declared, has increased its trade turnover from £360 millions in 1932 to £490 millions in 1935, or, in round figures, more than half the total annual national budget and equivalent to approximately one-eighth of the total national income.

During this same period it has increased its direct employing power from an average of approximately 600,000 to something in excess of 1,000,000 operatives. This volume of direct employment, joined with the volume of indirect employment emanating from the increased activity of the ancillary trades, is estimated to reach a total of 3,000,000 dependent workers, or approximately 25 per cent. of the total insurable population, and something very much in excess of 25 per cent. of the insurable male population of the country.

The task of maintaining, under conditions of industrial "jungle-ism," such an extensive volume of trade and employment at this high level will, at some time, call for a higher degree of organisational effort than is forthcoming at the moment.

The employing power and the consequential wage disbursement of the building industry, as compared with other industries, based on Ministry of Labour figures, is given in the following table :—

Estimated number of insured workers, aged 16–64 inclusive, in employment June, 1935.		Average weekly Earning 1931 (male workers)	Weekly wage disbursement, 1931
Building works	1,001,770	58/6	2,930,000
Coal mining ...	638,520	44/6	1,420,000
General Engineering ...	460,420	49/6	1,140,000
Motor cycle ...	257,030	57/6	739,000
Printing ...	255,710	68/–	369,000

Disbursement of Wages.

This table shows that on the estimated weekly wage disbursement of £2,930,000 an annual direct wage disbursement of £152,360,000 is attained. To this figure must be added an estimated annual indirect wage disbursement (material manufacture and other services) of £187,640,000, bringing the total annual wage disbursement to £340,000,000.

This annual sum of £340,000,000, representing, as its does, nearly 25 per cent. of the total national insured people's wages of the country, upon which the total wealth of the community—broadly speaking—is built up, is remarkable in at least two respects. In the first place, the general mainspring of such expenditure is unorganised, as it is without comprehensive guidance or co-ordinated purpose and without a vestige of nationally conceived economic ends. It rests almost entirely upon the play of chance, and in a national sense has no concerted policy.

In the second place, there is a complete absence of organisation, whether by national or local Government, to ensure that such an essential type and degree of expenditure is maintained, let alone increasingly expanded; and, moreover, it is allowed to remain—vital force that it is—the first plaything, because it is the biggest, of financial and political caprice.

With dim conception it is recognised that the economic destiny of the country rests first and last upon the weekly wage bill of its workers. The country, in its official interests, organises and rigidly controls its expenditure, dependent upon that wage bill, to the minutest detail. Every Joint Stock Company and private business spends considerable sums of money organising, checking and auditing its expenditure, but neither the country officially, nor its private concerns, pay the slightest heed to the organisation of the sources of that expenditure (which they so meticulously check) upon which they all basically depend. It is safe to say that in every respect the source of the national revenue and the industrial and commercial incomes of the country are totally unorganised, and may be—and most probably are—running, in many instances, to enormous waste.

The position is somewhat similar to that of a doctor who, in some blood disorder, painfully traces and checks every drop of blood to the finest terminals of the body, but omits to examine and, if necessary, augment, reduce or purify the source of the blood supply.

As the building industry continues to expand—as it will do if it continues to organise itself to become more and more the basis of home market expansion—public interest will increasingly become centred upon it. It will then be found, as the conditions within the industry are increasingly examined, that by organising the source of its activity it is possible to initiate varying measures of wage circulation with resultant positive measures of stable trade at given times and for ascertainable periods.

An "Economic Stabiliser."

In short, the building industry, properly organised and used, can be a widespread economic stabiliser. Public appreciation of this important fact, not necessarily singular to the possibilities of the building industry, except in degree, will almost certainly bring in its train a demand on behalf of the public that the industry must so organise itself to perform its predetermined function to the greatest possible extent of national well-being. That demand will give the industry the opportunity to indicate to the country the part the country itself must play in organising its own demand on the industry. At present the official interest—that is, the Government Departments and Local Authorities of the country—consume, as it were, averaged over a number of years, something very little less than 40 per cent. of the total products of the industry.

This demand, however, is of itself quite unco-ordinated at its own source and is not related in any way to the other sources of demand. It is just thrown into the industrial stew or maelstrom (an outrage to any public sense of orderliness), and its singular virtues as a strong economic ingredient are largely lost.

The means to maintain increased activity in the building industry during the forthcoming year are therefore twofold. They call for action by the national official interests so to formulate their demands upon the industry (which administratively should present no insuperable difficulties) that they will ensure the greatest measure of economic good, *i.e.*, in relation to the volume of demand and the time it is applied. On the other hand, they call for action by the industry itself to ensure that such demands are executed in a manner which, while serving the best interests of trade stabilisation, will not adversely affect, either in volume, cost or effect, the demand on the industry from private sources.

The problem thus outlined is fundamental to the industry, and there appears to be no quick solution. The chief ingredient called for in its solution appears to be a wider degree of public education of the new influences in industry generally and of the more widespread ends which are now sought to be served by those influences. In short, the change from unenlightened self-interest to enlightened self-interest, the goal apparently being that industry should function in a wider scheme of industrial effort for the common good as opposed to an industrial system based entirely upon the individual urge.

While this is the largest and most far-reaching problem facing the industry in the coming year, and possibly for a good many years hence, there are other immediate problems which will continue to call very lustily for attention.

Need for Benevolent Services.

The industry still holds the record for fatal accidents and is still without benevolent services, apart from those rendered by the trade unions and voluntary localised efforts, to meet the tragic consequences of this position. Assuming 75 per cent. of the fatal accidents to relate to male heads of families, and assuming the average to be two dependent children, the industry still creates approximately 150 orphans a year without a single organised effort to assist them. Such a position unquestionably gives justification for censure, but such justification may be a little more apparent than real. The fact is that the industry has only just begun to realise its collective responsibility in this as in many similar directions, but there is no question that in a collective sense the industry must give much more attention to its domestic concerns and responsibilities as a whole than it has done in the past. No section of the industry can be free of its responsibility to do something by way of mitigating the volume of ill-fortune it creates in its progress from year to year, under present conditions.

To touch upon a further aspect of the industry, there is the incongruous position that, while being, and claiming that it is, the greatest employer of male labour the country possesses and has ever possessed, it does not, in its collective capacity, pay a single penny towards schemes for either pensions for disablement, old age, or any of the usual benevolent or provident services of which so many of the smaller and younger industries of the country are so justly proud. If thoughts as to the means of obviating this collective lack of responsible service are engendered more widely in 1936, the year need not be counted as another blank in the unfortunately all too slow development within the industry of organised collective industrial responsibility.

COTHAY MANOR, SOMERSET

By JAMES G. REID.

COTHAY, defying alike the ravages of time and the more deadly ravages of changing social conditions, is one of the few perfect examples of a small fifteenth-century manor house surviving in the kingdom. Built by a member of the Bluett family towards the close of the fifteenth century, its only additions were made late in Elizabeth's reign, when the Every's added a small wing, containing the dining-room with a bedroom over, and wainscoted the dais end of the hall and the parlour. Since then the building has remained structurally, and for the most part decoratively, unaltered.

The perfect preservation of Cothay is due entirely to its position. It lies in a picturesque valley of West Somerset, far from all highways, and hidden by deep lanes that lead nowhere in particular from Wellington towards the Devon border. Had its position been more accessible, intervening ages would undoubtedly have seen fit to modernise it according to their own convictions.

The family history of this remote Somersetshire valley chiefly concerns Cothay and the neighbouring houses of Greenham Barton (which was enlarged in Henry VIII's reign and is similar in general outline to Cothay, though poorly preserved), and Holcombe Rogus. The Bluett family, who claimed descent from a Breton knight, a companion of William the Conqueror, gained its first territorial footing in the valley through the marriage of Walter Bluett to the only daughter and heiress of William de Grindeham (Greenham). As events proved, the family flourished at Holcombe, the shell of which still survives as a farm, for over four centuries. The Bluetts disappear from Cothay, however, during the troubled years of the mid-sixteenth century, for in 1588 the death is recorded of William Every "of Cothay." William Every died without children, leaving the house to his nephew, who, after his marriage in 1600, made the additions already referred to.

The exact date of Cothay is unknown. Undoubtedly a house stood on the site as early as 1330, for we find that Walter Bluett's marriage into the Grindeham family brought to him Kittisford and Cothay. The present appearance of the house is probably due to Walter Bluett the second, between 1460-1480, but it does not appear that he entirely gutted the building, for recent repairs have brought to light remains of wooden window-frames surrounding the existing fifteenth-century stone ones, which would imply that the shell of the present building is as early as the fourteenth century. The pointed arch of the porch also appears to be at least a century earlier than the rest of the building, and is possibly the only recognisable remains of the earlier house, reprieved when the remainder of the house was reconstructed, and given an upper story, the weight of which produced a serious settlement, which was counteracted by the broad buttress that now sustains the porch. But the occurrence of pointed arches in houses which are otherwise clearly of the late-fifteenth century is sufficiently common to need another explanation. As it was desirable for the purpose of lighting to have as lofty an outer arch as possible, and sometimes to bring tall objects, such as halberds, under cover but not into the house, the pointed arch was often retained as satisfying these conditions when for other purposes the flattened arch was found more convenient.

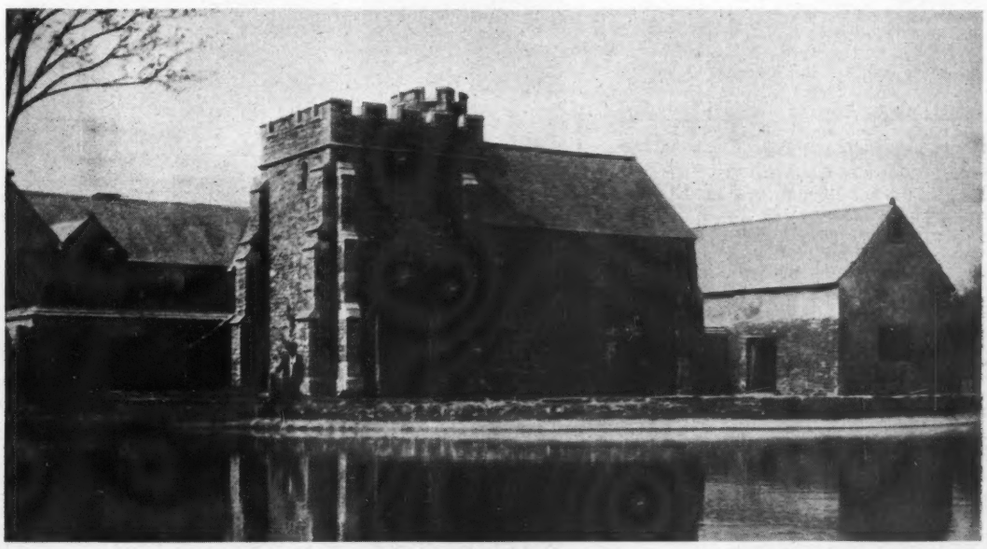
The gatehouse, unfortunately, was not in the same state of fine preservation as the house, and has been considerably restored. The restoration, which was carried out under the supervision of the late Sir Harold Brakspere, is undoubtedly as accurate as possible and is a very satisfactory piece of work. As restored, the tower recalls the high tower built in the reign of Edward VI over the porch at Holcombe, and the evidence of the armorial stone and the similarity of the original arch to the one at Holcombe suggests that this outbuilding was the last addition to the place, perhaps as late as 1530. The building that flanked the tower to the south, continuing the range (of which traces still remain), was not rebuilt.

A short historical sketch of the evolution of the English manor house will show how closely Cothay conforms to its chief characteristics. The Saxon dwelling, the nucleus of the manor house, owed nothing to foreign influence or the occupation. The uncovered atriums of the officials of Imperial Rome were found to be unsuitable to our climate, and a distinct type of house was evolved by the early Saxons, primarily consisting of a large covered hall, in which the lord lived, ate and slept with his family and serfs. The cooking was done at an open fire in the centre of the hall, the smoke escaping as best it could through the roof. Windows were little more than slits, which could be quickly shuttered, and the house was thatched with reeds or else had a covering of wooden shingles.

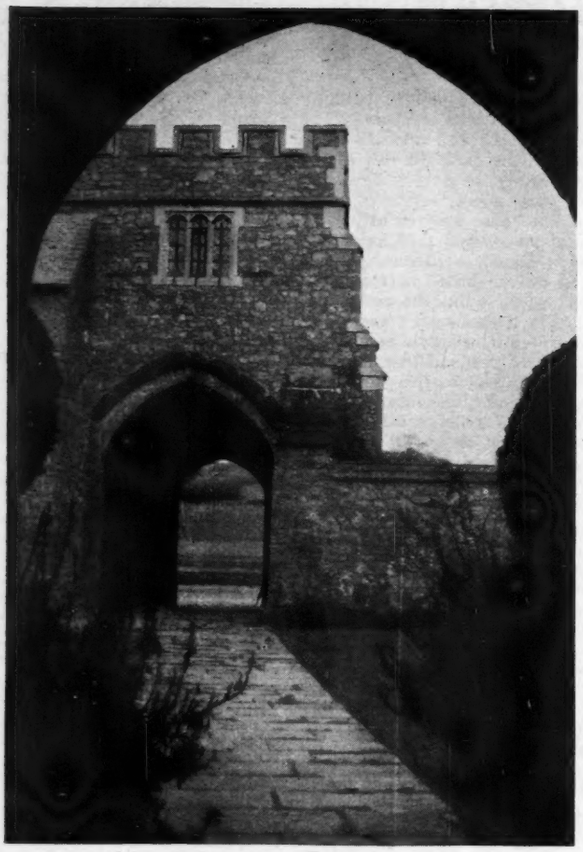
Around the house were the stables, the barn and offices, covered with lean-to roofs. Later, the barns, which were known as tithe barns, reached immense sizes, and formed an important feature of the manor house.

This early dwelling was developed by the Normans, who added a private apartment or solar to one end of the hall and the kitchens to the other, an elementary arrangement which is, indeed, the basic principle of the manor house; all future development taking the form of an increase in the number of rooms and an improvement in planning. In the manor house of the thirteenth century were first introduced the pantry, buttery, wardrobe and oratory, and we find now fireplaces and chimneys replacing the open central fire without flue. In actual lay-out, however, it differed little from its predecessor. The manor house of the fourteenth century was generally quadrangular, with a central courtyard entered through a gateway, which was protected by at least a moat and drawbridge, and often a portcullis. The unsettled state of the country still made protection of primary importance in all houses; the smallest manor house having at least a moat, and larger ones more elaborate fortifications. Cothay, indeed, derives its name from its protections. The River Tone, which still washes the garden close, was at one time a more formidable obstacle, completely surrounding the site, whence the name, "cot on the ey," becoming afterwards Cothay. The fourteenth century also saw the hall at its greatest development, although it was still the living-room and general dormitory for the retainers. Glazing was gradually superseding the wooden window shutters, but was still rare.

In spite of the Wars of the Roses, the fifteenth century witnessed in England an improvement in social conditions and commercial prosperity, and heralded also the end of the Middle Ages. The quarrels of kings and nobles affected but little the life of the ordinary man; even during the Wars of the Roses the farmer managed to till his land, with little regard to the disturbance around him, and the Lords of the Manor throve by reasons of good harvest and improvement in cultivation. Villeinage was steadily dying out, because it was more profitable to cultivate the soil by means of free labour, and the power of the Crown was steadily increasing, with a corresponding decrease in the power of the rival barons. This new prosperity and security were naturally reflected in buildings of a domestic character in an increased desire for comfort and privacy, and a decrease in general fortification; although defence motifs were still used decoratively until well into the sixteenth century. The hall, the most



THE GATEHOUSE.



VIEW OF GATEHOUSE, FROM PORCH.

characteristic feature of English domestic architecture, was still the principal feature of the house, although now it had ceased to be the general dormitory. Entry was afforded by way of the "screens," a term applying to the whole of the entry corridor, over which was the gallery. In the screen itself were usually two openings without doors, which led into the hall. At the opposite end of the hall was the dais, opening off which were the more private apartments. A cross wing accommodating the kitchen is usually found at the screens' end of the hall.

Cothay follows closely the conventional form of small fifteenth-century manors, the most elaborate example of which is Great Charfield, Wilts (1480). The hall occupies its characteristic position in the centre of the house and runs the full height of the building. In the fifteenth century it will have been strewn with rushes and covered with trophies of the chase. The trusses of the open roof, the whole of which is original, are carried on angel corbels; these are without wings but bearing shields. Seen from below, these trusses, intersecting with the curved wind-braces, form an infinitely varying and delightful pattern of curves. The party walls of the hall are of timber framing arranged with decorative effect. In the north one is the characteristic spy-hole, which enabled the master to survey the hall from the solar. All the timbers are washed with rennet and are a reddish brown.

The dais is raised but slightly above the general hall level, and the wainscot about it, which was added by the Every's in 1600, still bears its original paint. The windows are mullioned and transomed, with uncusped four-centre heads, and still retain their hinges and cam bolts for the shutters that preceded the glazing. In common with those throughout the house, the hall fireplace is flat with large simple mouldings. The walls showed traces of decorative painting which, however, were too fragmentary to be worth retaining. The cross-beam, now concealed behind the frieze of the wainscot, was found to be painted with floral festoons.

Passing through the entrance, the door of which is original with its wooden lock-case and wrought-iron handle-plate, we have what were the service rooms on the left, the arrangement of which differs slightly from contemporary plans As at Ockwells, a straight flight of stairs ascends from the middle of the screen to the bedrooms, and east of it is a considerable space, now sub-divided, which originally will have been the buttery and pantry. West of the stairs is the original kitchen, with capacious ovens and fireplace. Over these domestic quarters are the bedrooms containing the most cherished possessions of Cothay—a unique series of fifteenth-century frescoes.

The screens originally had a door at the west end as well as the east end, but when the Every's added the wing that contained the dining-room to their west end, communication from hall to garden was opened up by piercing a door in the west wall of the hall.

The screen itself is of oak studding and is surmounted by a deeply moulded bressummer, on which rest the rafters of the gallery. This gallery is unique in that it still retains its original high wall of plastered lath. It is now pegged with spears. Later uses, and possibly sentiment, have led it to be generally supposed that the gallery was constructed solely for the minstrel. Its original purpose, however, was to give access to the bedrooms, and the gallery at Cothay is believed to be the only one in existence that still serves this definite purpose, and that has remained unaltered. An oratory over the porch opens off the east end of the gallery, and in this instance the gallery might have served the secondary purpose of accommodating any extra attendants at Mass. The room opening off the oratory will undoubtedly have been the master's and mistress's bedroom, commanding as it did a view of the gateway through its east window, access to the hall gallery through the oratory, and the head of

ENTRANCE PORCH, EAST FRONT.

THE MADONNA AND CHILD IN A ROUNDEL.
(15th century fresco.)

the stairs by its door. The ceiling is supported by two well-moulded intersecting beams, and the window is unlike the rest of the windows, being flat-headed. A squint to the right of the door communicating to the oratory commands the spot where the altar once stood.

The elevations lack any attempt at ornamentation and are wholly dictated by the plan, resulting in a faithful, almost ingenious, outside expression of the interior. The district yields a purple sandstone, of which the house was built. This local stone is left exposed on all external walls except the east front, which is harled and washed yellow ochre. The common building material of the valley was cob, of which the outbuildings are largely constructed. Recent repairs to the roof have proved that it was originally of thatch and not, as was previously supposed, covered with local slates similar to those at Cleve Abbey. All the dressed features are of Ham Hill, material that produced the magnificent architecture of Montacute and Barrington. The front gables are surmounted by gablets that at one time formed the bases of crockets or other finials. All the chimneys, which have been built out of the wall, are of massive construction and have been kept away from the principal front.

Some slight inconvenience must have been caused by rainwater dripping on the heads of those emerging from the porch, but this defect was fortunately remedied long before down-pipes came into general use. Early in the sixteenth century a lovely crested lead gutter was carried across the gable of the south wing from the offending valley. If this indeed is its date, it is probably the earliest surviving lead gutter on a domestic building in existence.

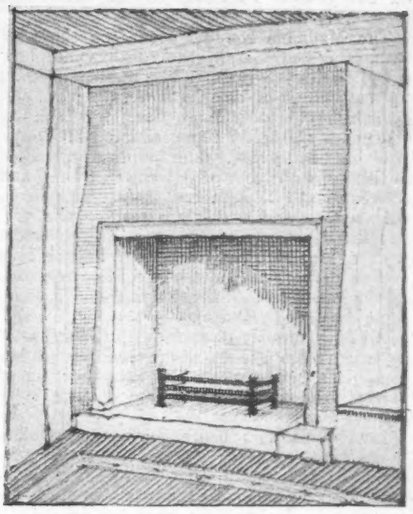
The solar, which was originally the women's living-room, is attained by means of a newel stair, making half a revolution, from the parlour. This staircase is contained in a square projection from the north wall of the house. Whether as an unaltered example of fifteenth-century construction or as a room of any period, this long space with apricot walls and roof of silvery and russet timbers is rarely satisfying. The open roof is identical, on a smaller scale, with that of the oratory; the trusses, horizontal beams and even the wind-braces of which have broad chamfers. On the arched trusses this bevel is as much as 3 in. The east end is lit by a mullioned and transomed window similar to those of the hall, and, like those of the hall, it still bears its hinges and bolt cams for the shutters that preceded the glazing. A small window in the south wall is so placed as to give a glimpse of the domestic altar through the north window of the oratory, and the usual peep from solar to hall is afforded by a small square window in the south wall. The west window, which is identical with the east window, is surmounted by an unusual flamboyant window of three whirling lights, whilst a small light also opens to the north. The solar is, therefore, with its many lights, well adapted for such feminine pursuits as needlework. Traces of paint found on the stone lintol of the fireplace indicate that the stonework was originally concealed, and not, as is generally supposed, ostentatiously left bare.

The dining-room, the most important addition of 1600, is entered through the west door of the screens, this door originally opening into the garden. The room has oak wainscot similar in design to that of the hall and parlour, but dissimilar in that it does not retain its paint, if it ever had any. The ceiling beams are plastered and enriched with creeping vines. The focal point of the room is the chimneypiece, which is richly carved and retains much of its original paint—brown—with the masks in the frieze, rosettes under the allegorical figures and hair of the figures picked out in gold. The three compartments each contain the arms of Every carved on their respective shields and painted in proper colours. The impaling arms on two of the shields are only painted and are, in consequece, almost indecipherable. The stone fire-arch is the most "Gothic" arch of the entire building. The bedroom over the dining-room has moulded plaster beam, but no other outstanding features.

Contemporary with the dining-room is the decoration of the parlour. This room is situated at the east end of the north wing, and entered off the dais. The original stone mullioned and transomed window was replaced by a flat-headed wooden one similar to that of the master's bedroom. The wainscot, in common with that of the hall, still retains its original walnut graining, which is a very uncommon survival. It is painted in the mother-of-pearl convention, with green, pink and yellow whoils on a grey ground that was, perhaps, originally white. The mitres are painted yellow and the stiles grained. The only features contemporary with building of the house are the fireplace, with its flat lintol of a single stone about 8 ft. in length, and the fire-back. This is made up in slates set in herring-bone tiers, which was an early and very effective form of fire-backing. The fresco over the fireplace is now hidden by the wainscot. The room has richly moulded ceiling beams.

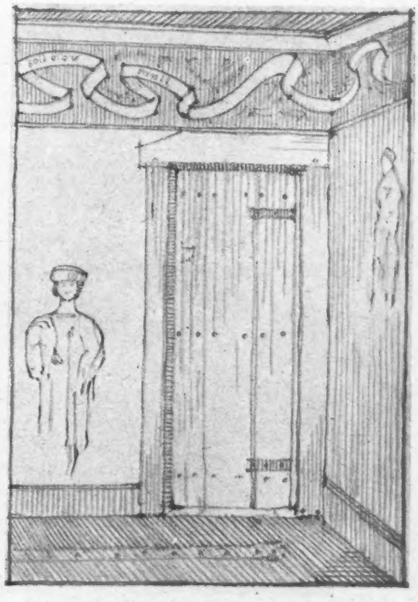
The room at the west end of the north cross-wing is the only one in the house, apart from the servants' hall, of which the decoration is entirely new. This room is also entered off the dais and was apparently originally designed as a store-room, since it contains no fireplace and no sign of decoration. It is now the library.

The fragmentary remains of frescoes found in the hall are of small consequence in comparison with the exceptionally well-preserved ones found in the parlour and the two bedrooms in the south wing. The frescoes in the bedrooms were hidden under successive coats of plaster, and accidentally discovered by a workman during recent repairs. In the parlour is a fragment of frieze composed of men in the costume of the late fifteenth century, whilst another painting over the fireplace is now concealed by the wainscot. The most important of the whole series is the Madonna and Child, full length in a landscape, the whole being contained in a roundel. This was found in the bedroom over the kitchen. In another bedroom, the walls of which were evidently covered with paintings, the most interesting survival is the Immaculate Conception. This uncommon subject shows the Madonna, with reading-desk and lily, in the act of conception. From the top left-hand corner the Child is seen about to proceed down a ray. Other frescoes in this room depict a man in a tabard and cap, a woman in a mauve dress, and a carmine frieze over which winds a scroll inscribed with fragments of lettering. This frieze has now been connected with a reproduction of the pattern. Professor E. W. Tristram ascribes the Cothay frescoes to the latter half of the fifteenth century. "Their outstanding interest," he says, "consists of the rarity of domestic as compared with ecclesiastical paintings, the light they throw



A BEDROOM FIREPLACE.

FRESCO, THE IMMACULATE CONCEPTION.



FRESCO FIGURES AND FRIEZE IN A BEDROOM.

on the general treatment of the room, and their early date."

The Madonna roundel occurs on the west wall of a bedroom in the south wing, now called the Green Room. The Madonna wears an under-dress of blue, now a dove-grey, and a mantle of russet hues, formerly crimson. The faces are deftly lined, and the landscape is of blue and green. The buildings are lined in black with conically roofed towers and conventionally represented trees. The moon with a face and a star are seen in the sky, and the whole is contained in a white roundel with a blue pattern on it and having four bosses, perhaps intended to represent enamel. In the left-hand top corner is a shield with an eagle displayed (Bluett).

All is vigorously dashed on the wet plaster in true fresco except where the design has come on a beam, where the thin covering of plaster has perished and the colours have stained the wood.

In the master's bedroom the Immaculate Conception is the most completely preserved. Here, again, the outline is in black, and the Virgin has a crimson cloak. At the south end of the same wall is the woman in mauve on a crimson background, and behind her are fragments of a kneeling man. Between her and the fireplace is the man in a tabard and a round cap with bobbed hair. Only the dashed-in outline remains, from which the rough vigour of the drawing can be appreciated fully.

The paintings show many suggestions of earlier work, although generally in accordance with the characteristics of West of England work. The figures and drapery are clearly of the fifteenth century and similar to what may be seen painted on panels of Devonshire church screens. It must be remembered that the West of England did not come into contact with Flanders and the Continent, as did East Anglia. Consequently, the paintings would be largely influenced by the work of the preceding century. They did, indeed, contain many of the qualities of earlier styles in a debased form. Professor Tristram says that he knows of no other domestic work with which one could make any comparison, and in consequence the Cothay paintings appear to be unique. After Cothay, the most extensive remains of frescoes to be found in Somerset are at Cleve Abbey, which is but a few miles from Cothay. There is sufficient between them to ascribe the Cothay frescoes to a monastic artist from Cleve.

The colour treatment of the rooms has been based generally on fragments of the original colour washes, and shows how well simple schemes of full colours fit a mediæval interior without the introduction of hangings or wainscoting, which, indeed, were rarities in the fifteenth century. Neither has any attempt been made at period furniture, an artificial restriction at its best, and impossible for this period.

It is to Colonel Cooper, who purchased Cothay in 1925, that all lovers of English architecture should be grateful for the skilful and sympathetic treatment of this gem amongst manor houses of the fifteenth century.

"THE BUILDER" DEBATE

LXXXI.—DOES MODERN LAW HANDICAP BUILDING?

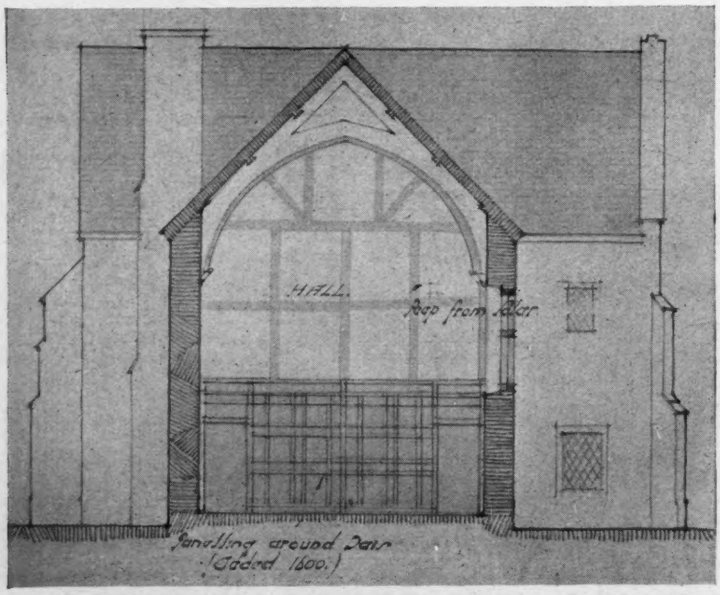
"That recent legislation upon Town Planning matters tends to put a check upon building development."

SIR,—In that all restrictive legislation tends to impose a check, the motion, as tabled, commands a qualified assent. But I think the real point at issue is whether recent legislation has been so deterring as to affect seriously the volume of building undertaken, or likely to be undertaken in the near future. As regards legislation dealing with ribbon development, the immediate effect appears to have been to accelerate building, many speculators and landowners having hastened their projects in order to be in advance of local governing bodies moving slowly. In regard to house building, any observed tendency towards a reduction of volume appears to be due to some districts having reached saturation point, or a near approach to it. In regard to town planning, it is natural, and even desirable, that there should be considerable delay in coming to decisions. This has resulted in individual cases of hardship. Here it is necessary to remember that we are planning for posterity, which has always demanded a measure of self sacrifice. It is natural that the individual should put up resistance to anything affecting, or appearing to affect, his own interests, and this resistance may amount to a temporary check on development in some particular case. But it cannot be said that these cases of individual hardship are of so serious a nature as to require us to abandon the main proposals. "Positive" appears to think that we have got into a hopeless muddle, and that our only chance of salvation lies in handing over the entire administration of building to the architect. I should be much more impressed did he not claim that building is an art only to be properly administered by artists.

In support of his proposal "Positive" repeats the old argument that the country has already recognised that law and medicine are specialist subjects, and that the public must be forced, in some measure, to depend on those having approved qualifications. The law, while it demands that the doctor must hold the necessary qualifications, does not in all cases require us to employ him. We may ordinarily prescribe for ourselves at our own risk. Similarly, we may make our own wills and conduct our own cases in the law courts, and perhaps win them. Ordinarily, however, being reasonable and prudent men, we seek the aid of the doctor, and, with reluctance, that of the lawyer. But my point is that we are not compelled to do so, and so have a measure of liberty. Give the architects complete control of building, both in relation to design and administration, and a vicious inroad will be made on our freedom.

Building is to-day more closely related to science than to art. But from a town-planning point of view the dominating influence is that of commerce. The real reason for widening streets is to facilitate traffic movement in the interests of commerce. The point I wish to make, however, is that the architect does not always in practice show that practical knowledge of the needs of commerce that would permit of his being given complete control and undivided authority. There are numerous other interests requiring to be considered before a town-planning scheme is adopted, and the matter is essentially one for a committee. And here I think we find a consideration of very great importance. For reasons that are not obvious, architects do not appear to seek election to local governing bodies in sufficient numbers. This is strange, for a very large portion of the money raised by rates is spent in works of a constructional character, and there is much that the architect could do better than any other.

NEGATIVE.



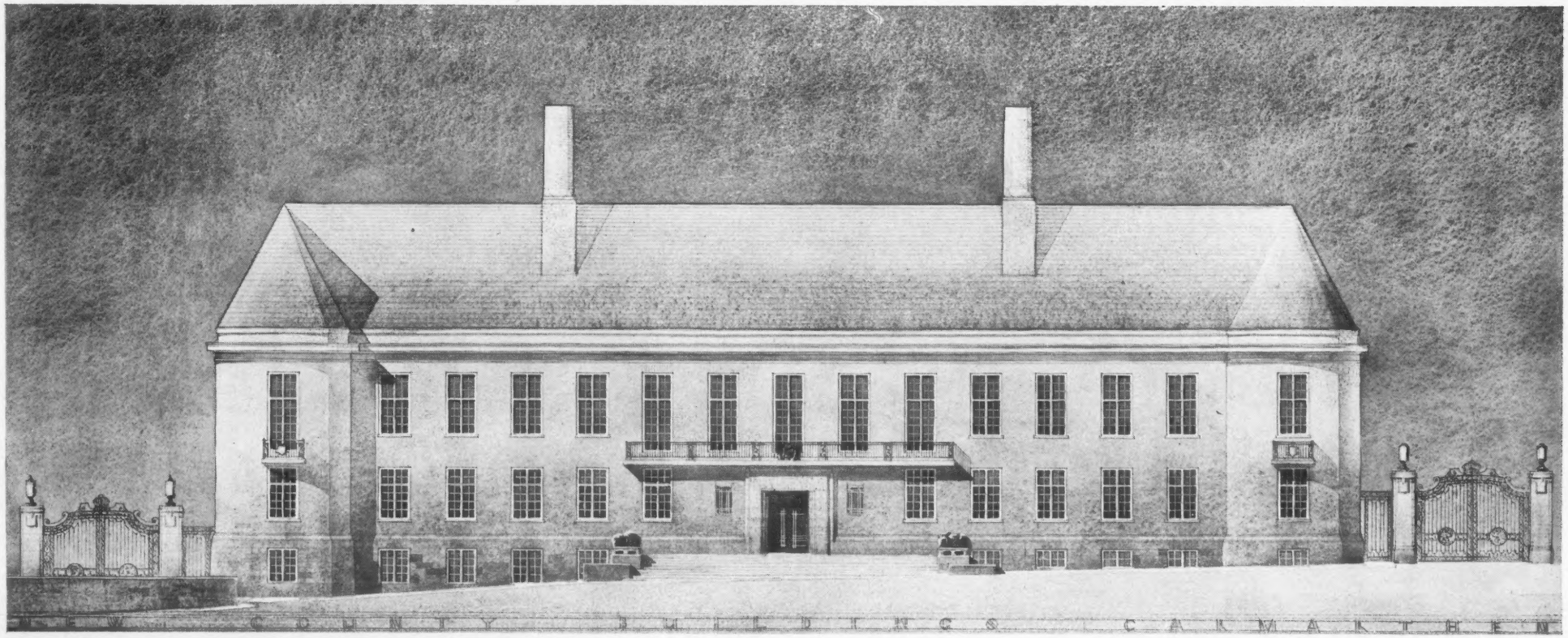
COTHAY MANOR: CROSS SECTION THROUGH HALL, LOOKING TOWARDS THE DAIS.

BURLINGTON FINE ARTS CLUB.

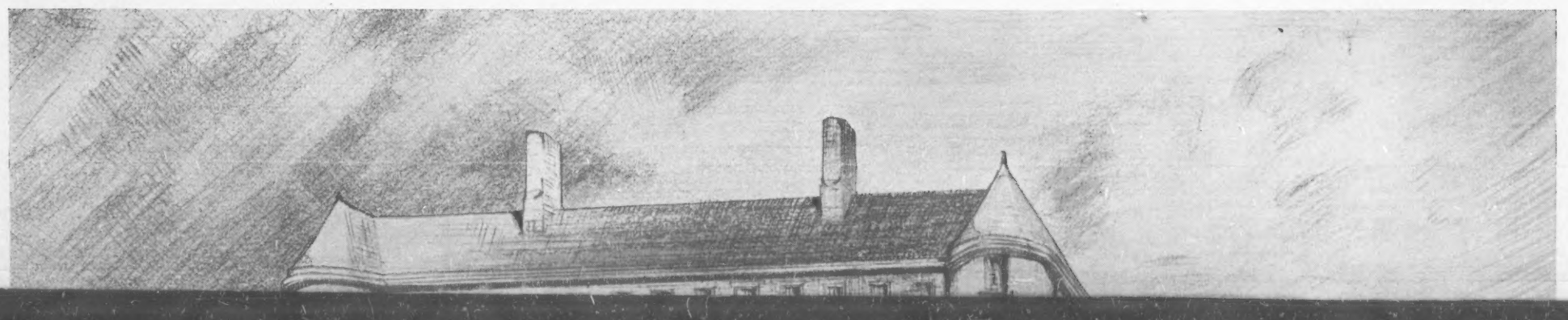
CHINESE ART.

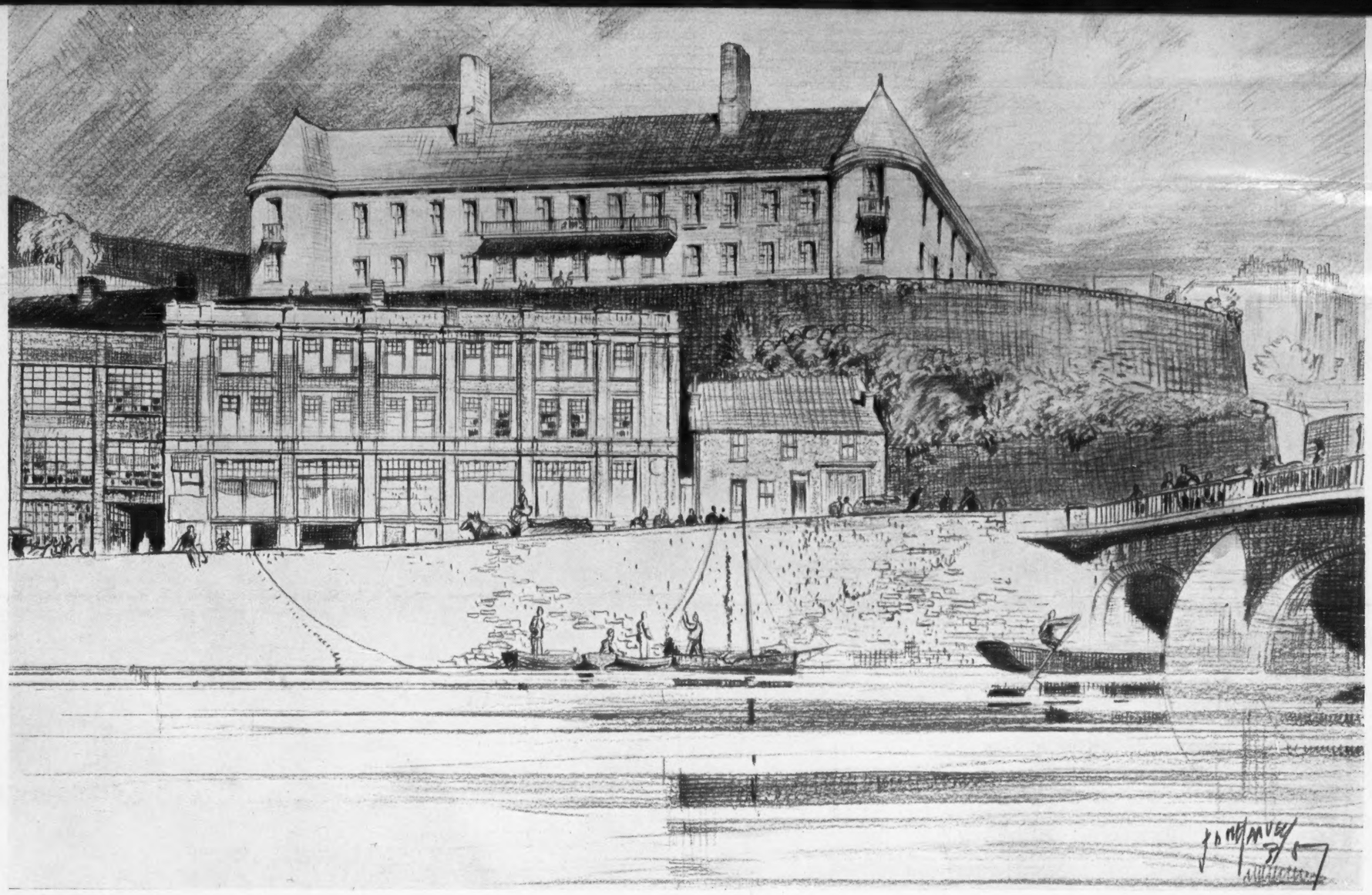
THIS is an exhibition which is looked forward to on account of the quality of the exhibits. "Chinoiserie" is the subject of the exhibition, and in view of the Chinese Exhibition at the Royal Academy, it is a subject of particular interest. With these two exhibitions open, it will be interesting to see if there will be any revival of the Chinese influence, which had such a vogue during the eighteenth century. The influence affected furniture, glass, china, bronzes, etc. Even the trade card (No. 197) of Mr. Edward Dobson, jeweller and working goldsmith, dated 1755-1773, is strongly influenced. Naturally, the English artists' interpretation is apparent, but not bereft of its charm; in fact, a certain quaintness makes it attractive. The furniture makes an admirable setting for the lesser objects. No. 20, chiffonnier in mahogany with lattice decoration, circa 1760; No. 34A, standing shelves with lacquered decoration, pagoda-shaped top, hung with bells; and No. 33, commode, decorated with black and gold lacquer, are charming examples.

Whatever object comes under notice, there is a certain elegance and refinement, lacking in much work to-day, which is often only attractive by its oddity. At the time these objects were made they no doubt were looked upon as an odd innovation, yet they have survived and are justly prized. Mention may be made of No. 5, a pair of tankards in silver, engraved with Chinamen, birds, flowers and architecture, dated 1688-9; No. 7, the epergne in silver; No. 10, pair of two-handled cups in silver gilt; No. 27, overmantel mirror, framed in gilt rococo scrollwork with panel of glass painted in the Chinese taste; No. 35, long case clock in gold and polychrome on a red lacquer ground, dated 1760; Nos. 72 and 76, panels of tapestry, with their lovely colouring; Chelsea and bow figures; Bristol glass bottles painted by Michael Edkins about 1770. This is but a fraction of the objects to be seen and appreciated. The extent of the fashion may be gauged by two books published in 1755—No. 20, "Rural Architecture in the Chinese Taste," by Wm. and Jno. Halfpenny, architects, and No. 121, "A Treatise of Japaning and Varnishing, by John Stalker, Oxford, fo. 1688," which may be seen.



FRONT ELEVATION.



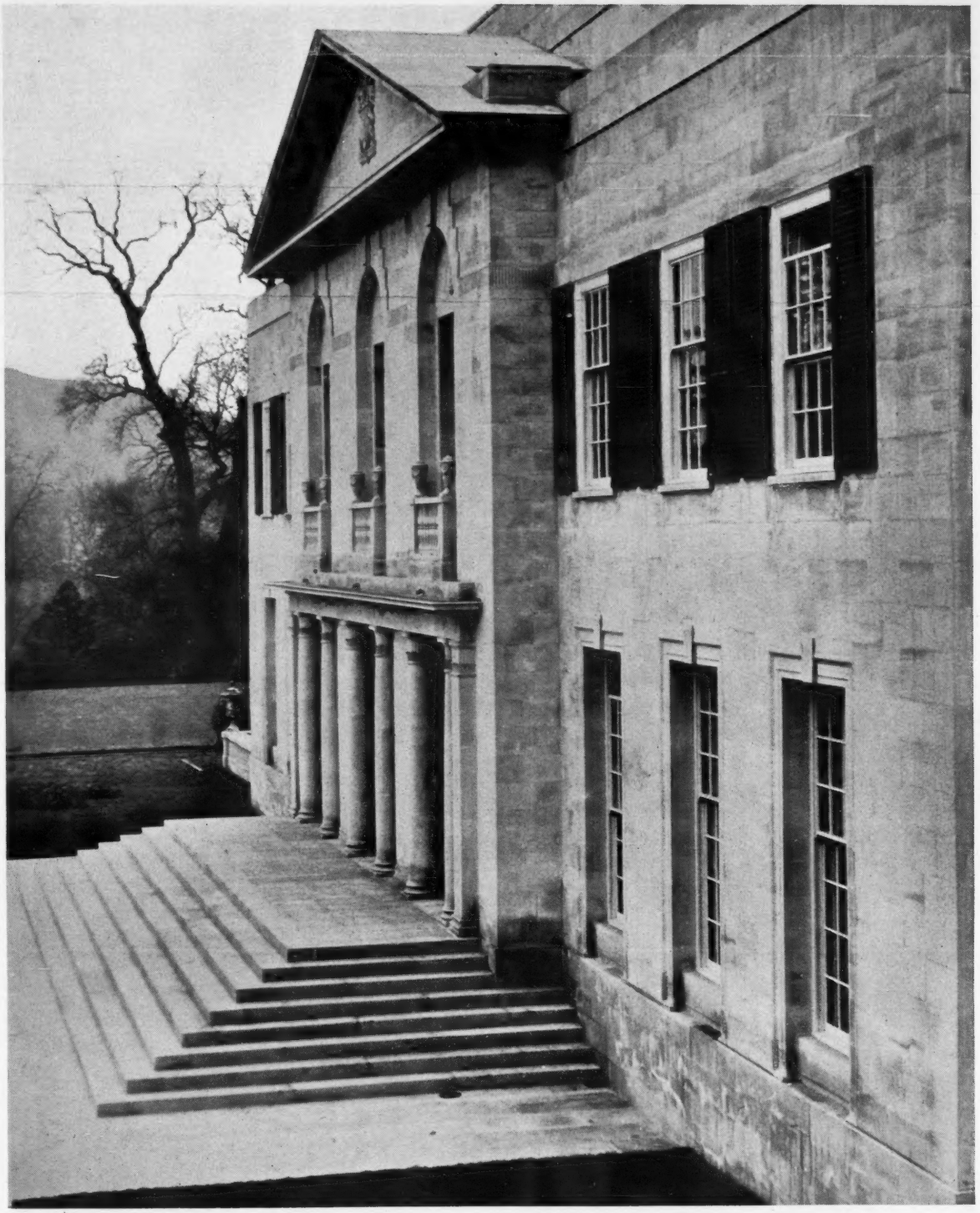


GENERAL VIEW, FROM RIVER.

PROPOSED NEW COUNTY OFFICES FOR CARMARTHEN.

MR. PERCY THOMAS, O.B.E., P.R.I.B.A., Architect.

WEST END.



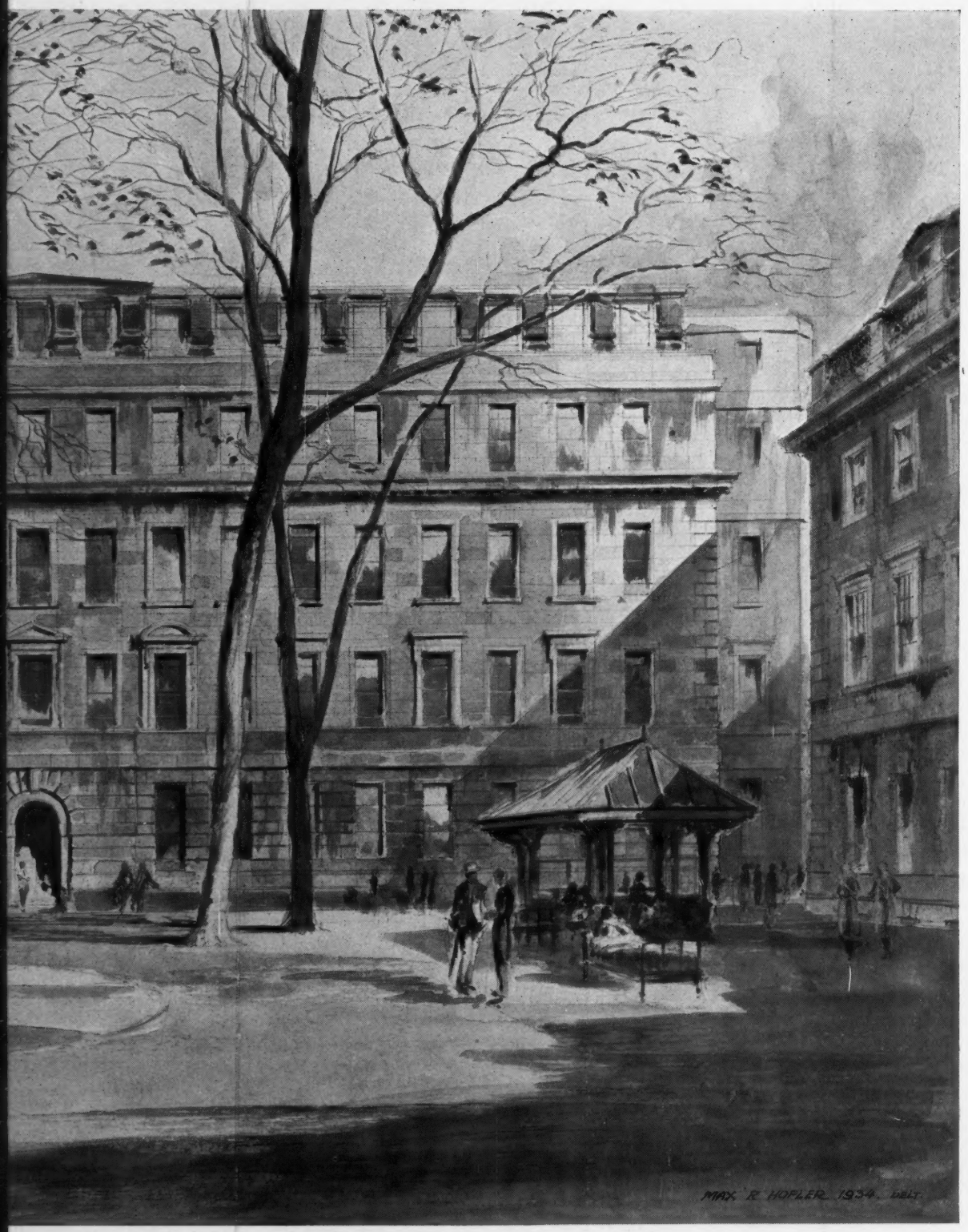
DETAIL OF GARDEN FRONT.

"GATTON PARK," SURREY.

SIR EDWIN COOPER, A.R.A., Architect.

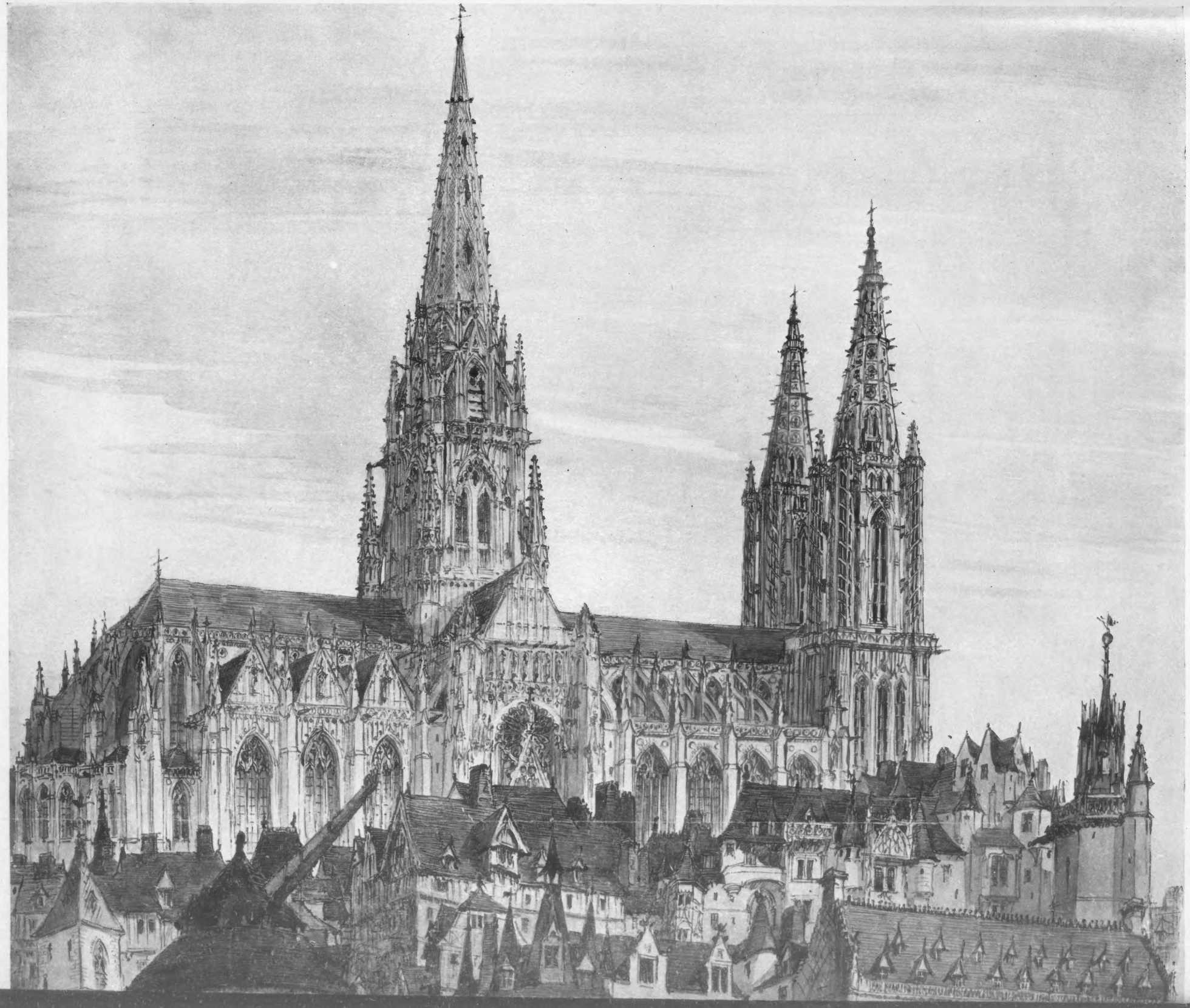
ST. BARTHOLOMEW'S HOSPITAL : View of Proposed Medical Block, fro

MESSRS. LANCHESTER AND LODGE, FF.R.I.B.A., Architects.



Proposed Medical Block, from the Square.

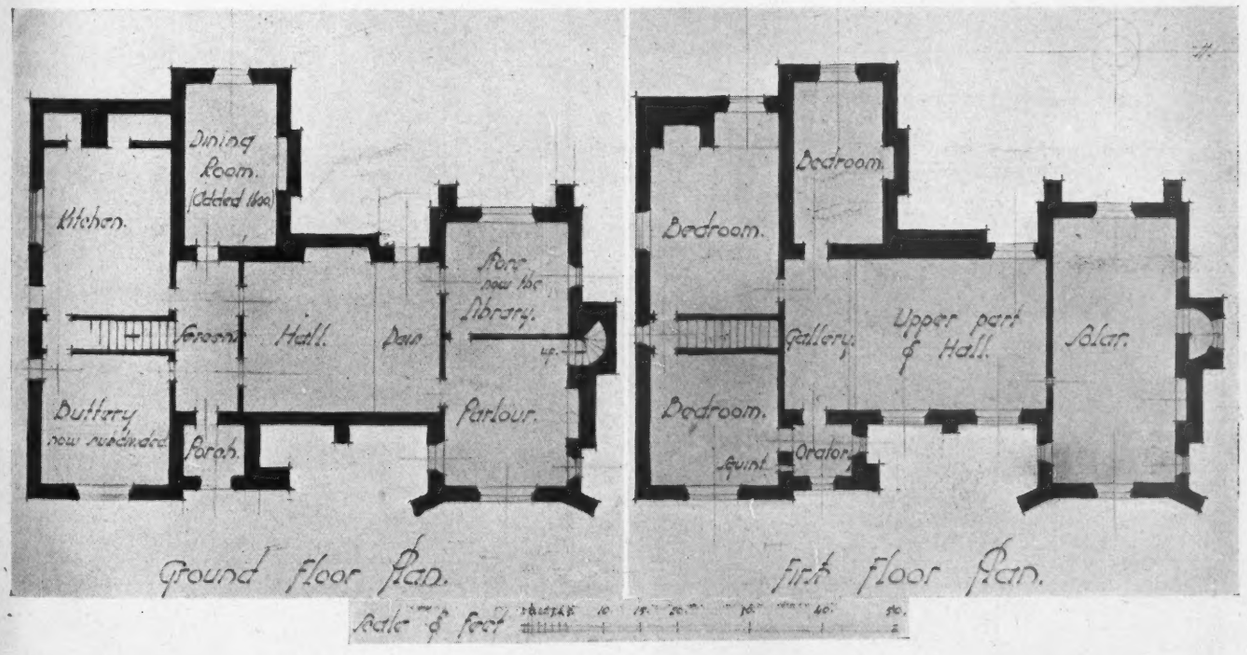
DGE, FF.R.I.B.A., Architects.



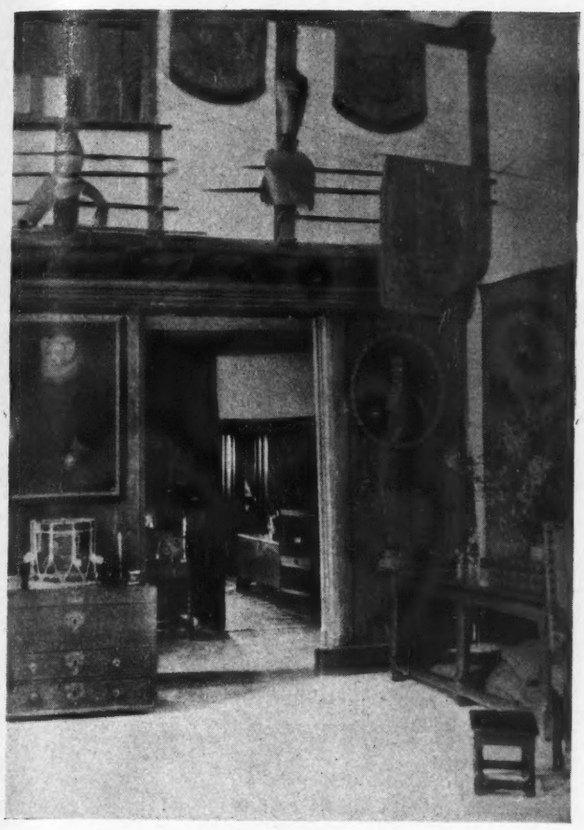
A FANTASY OF THE 16TH CENTURY: "LIFE AND ART."

By PROFESSOR A. E. RICHARDSON, F.S.A

THE EAST FRONT.



COTHAY MANOR, SOMERSET.



THE SCREEN WITH GALLERY OVER.

THE SOLAR.

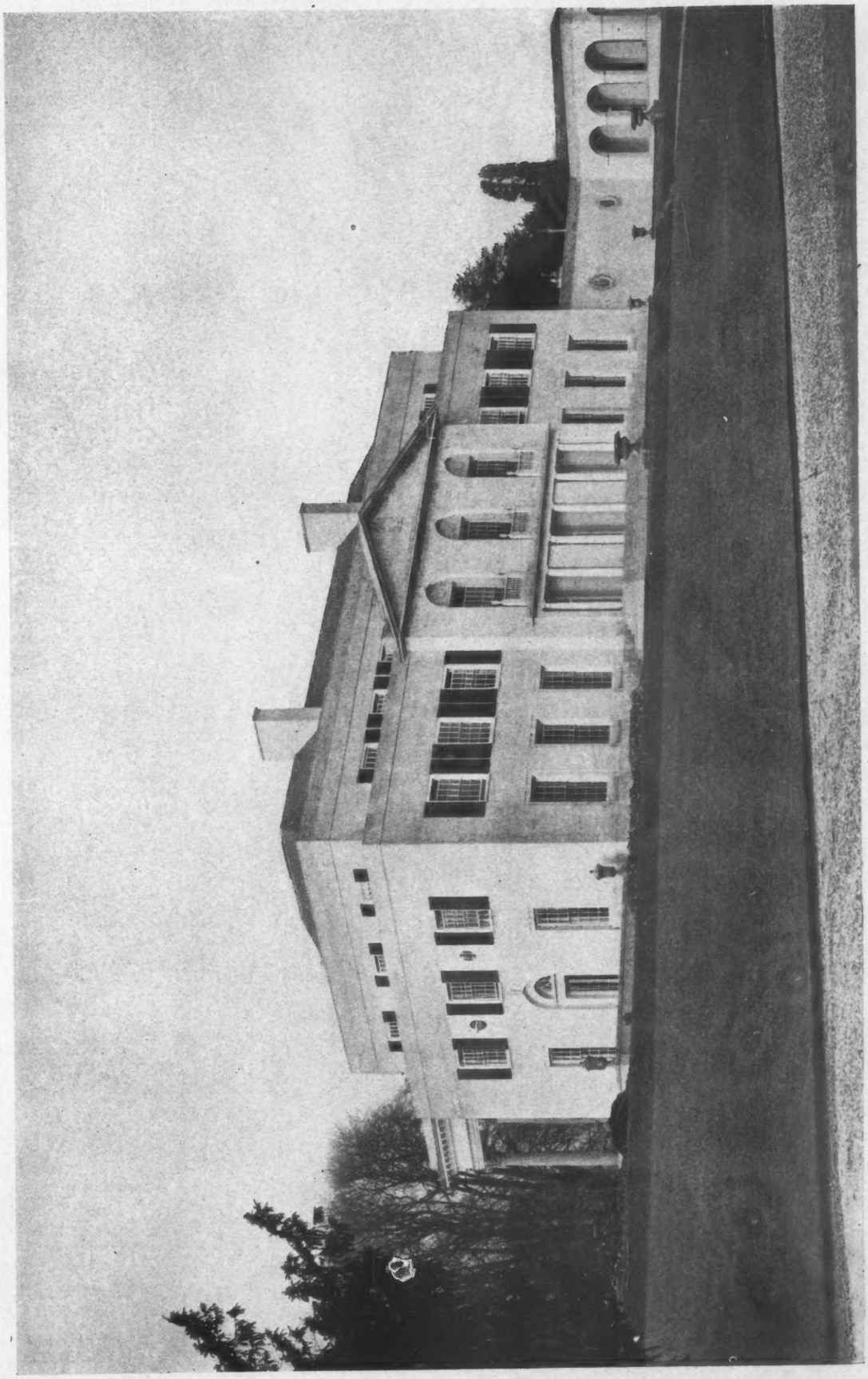
HALL FIREPLACE.

DINING-ROOM FIREPLACE.

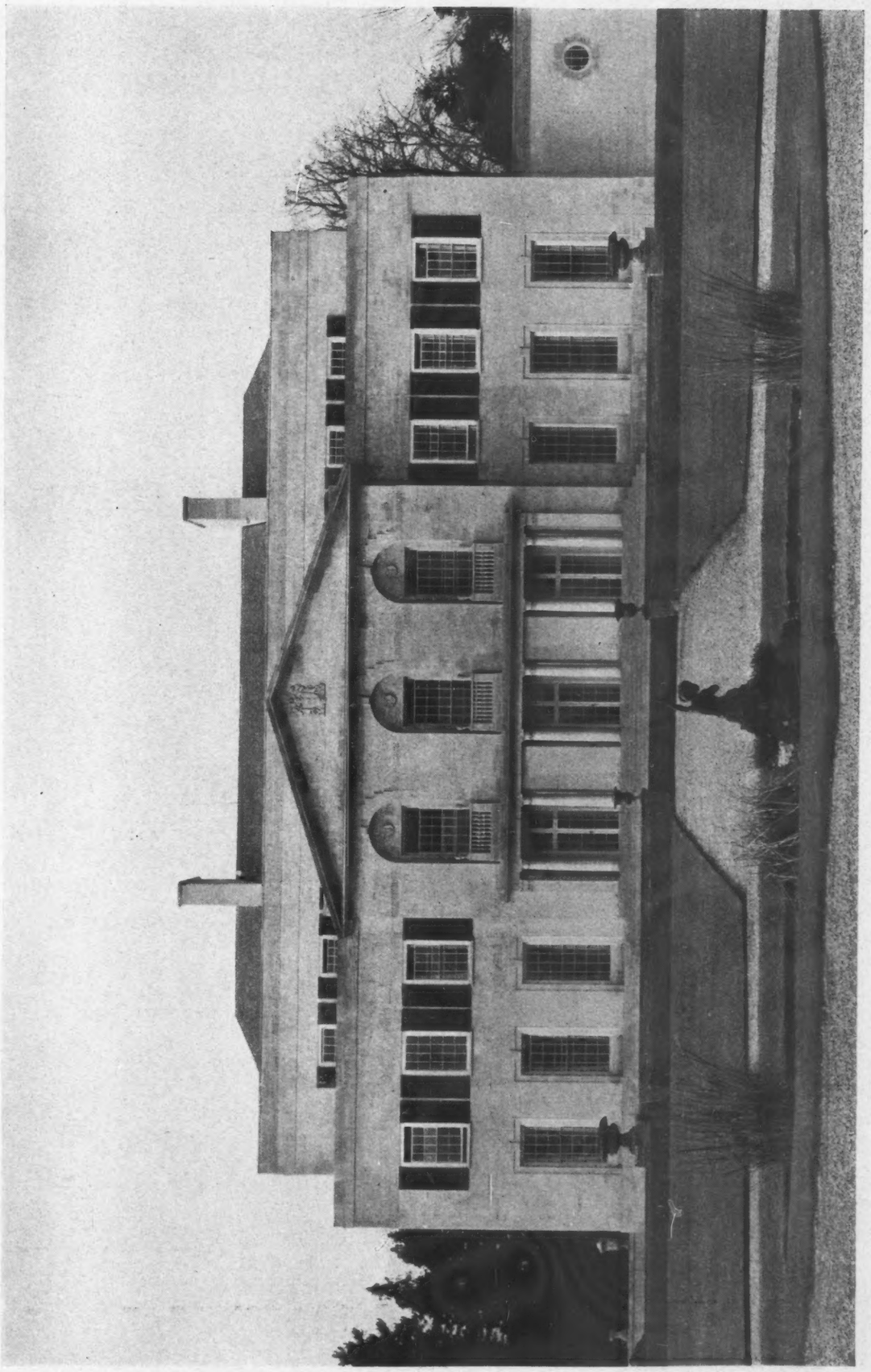
COTHAY MANOR, SOMERSET.

THE DEVONPORT NURSES' HOME AND SCHOOL OF PATHOLOGY, GREENWICH: Entrance to Quad.

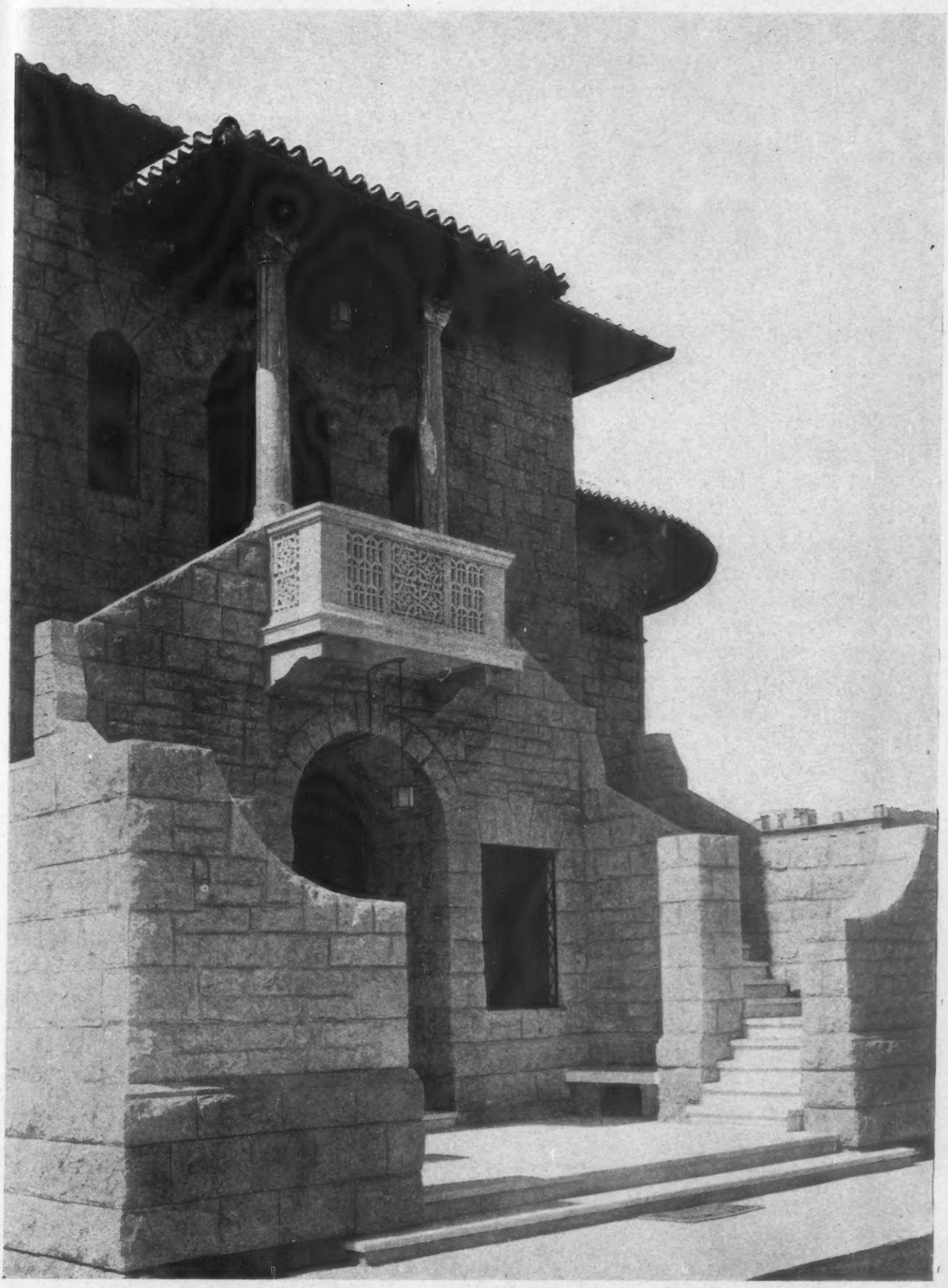
SIR EDWIN COOPER, A.R.A., Architect.



"GATTON PARK," SURREY: View from the South-West.
SIR EDWIN COOPER, A.R.A., Architect.

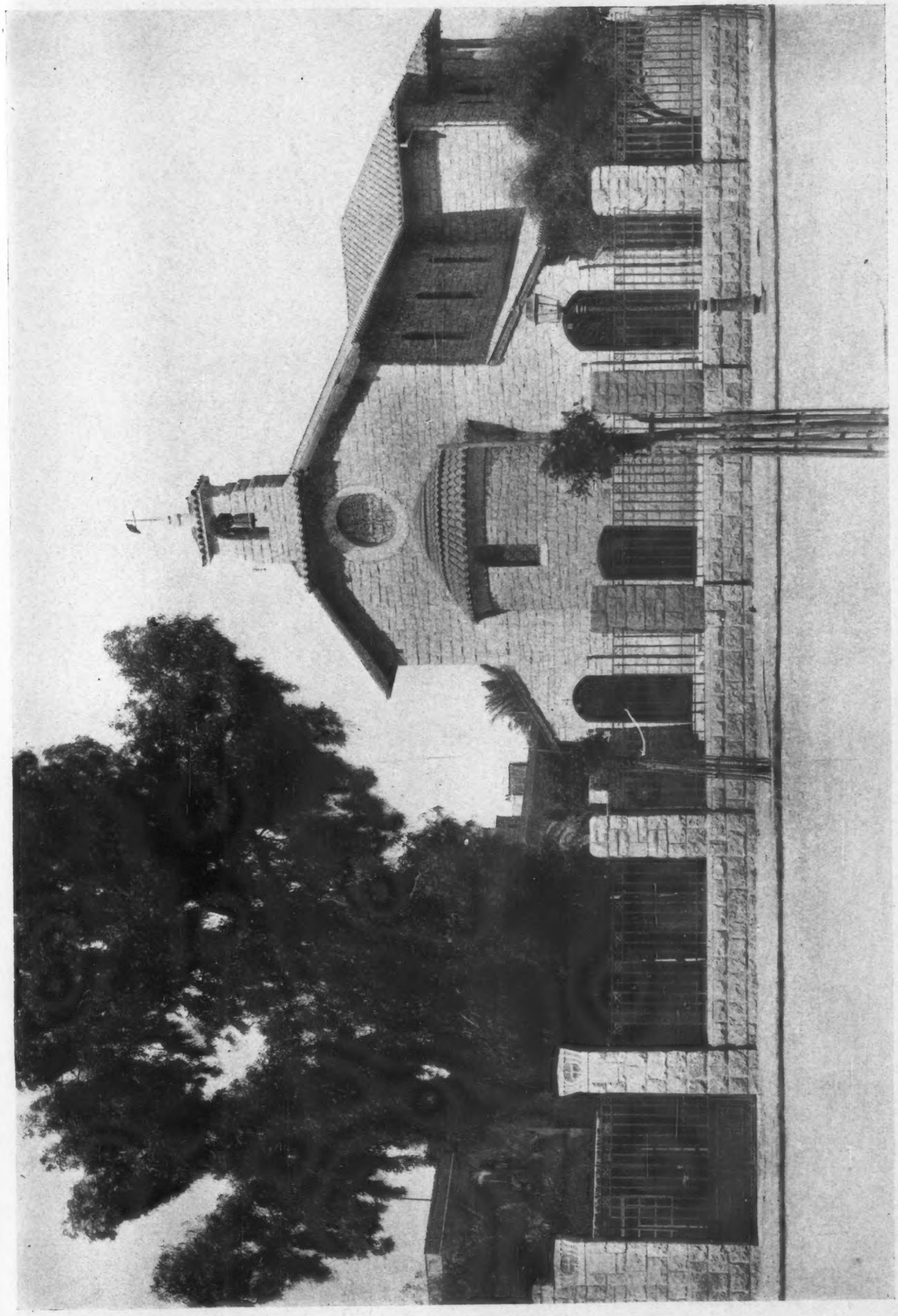


"GATTON PARK," SURREY: Garden Front.
SIR EDWIN COOPER, A.R.A., Architect.

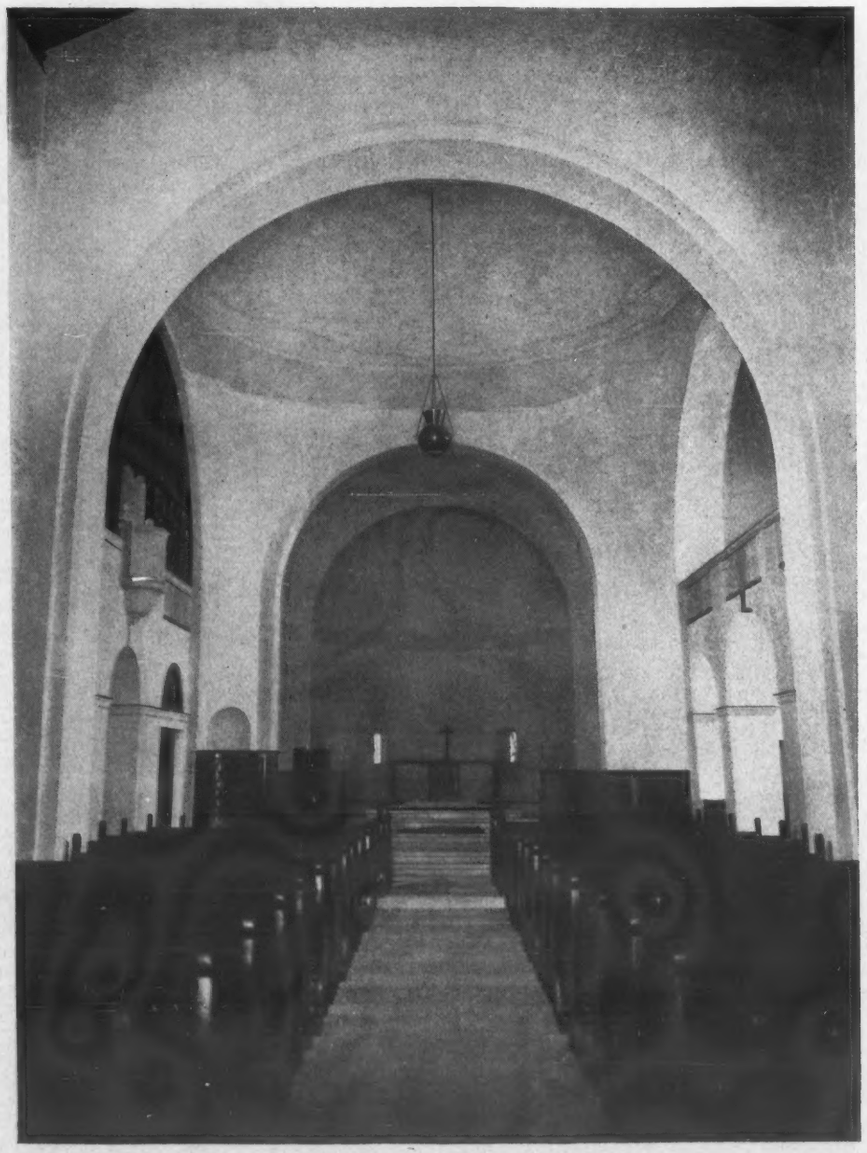


THE GARDNER MEMORIAL CHURCH, CAIRO : Detail of North Elevation.

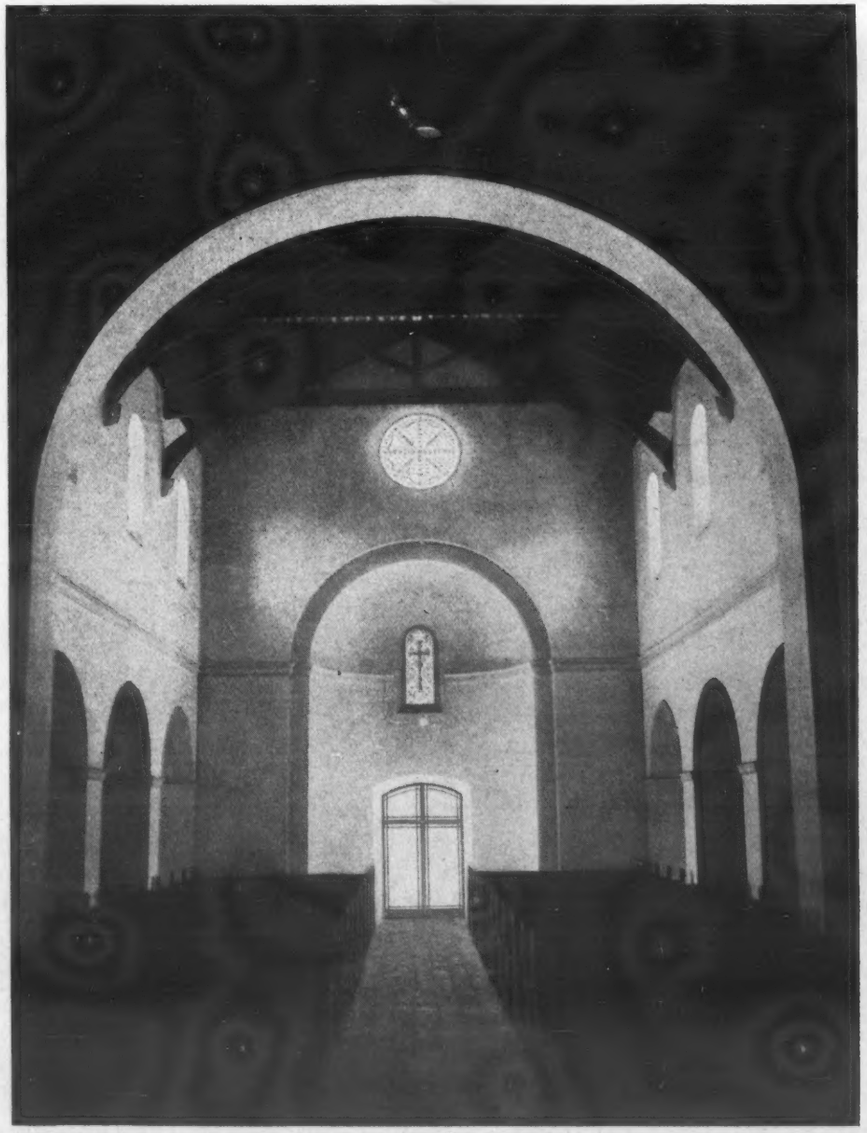
SIR HERBERT BAKER, R.A., F.R.I.B.A., Architect.



THE GARDNER MEMORIAL CHURCH, CAIRO : View from East.
SIR HERBERT BAKER, R.A., F.R.I.B.A., Architect.



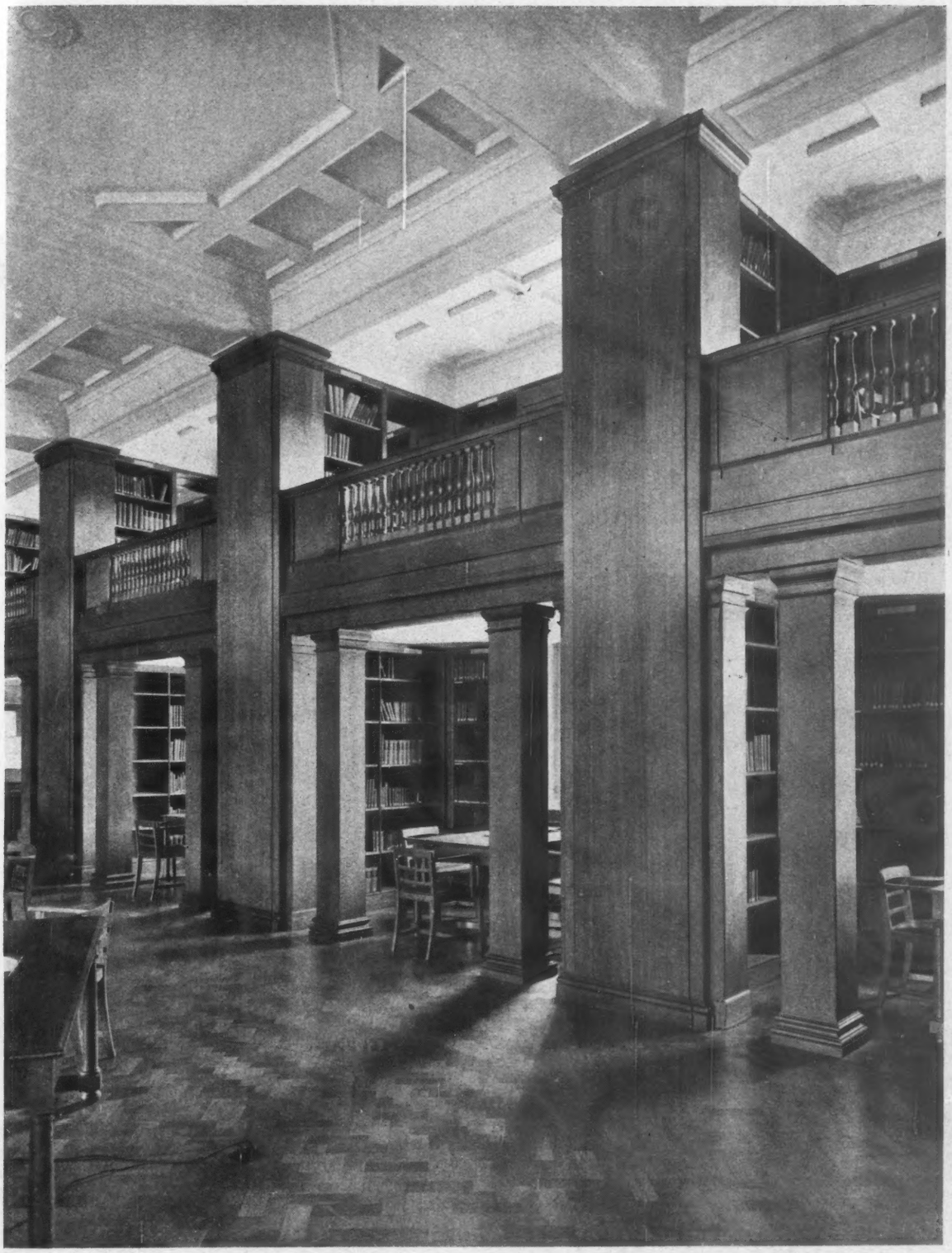
VIEW LOOKING WEST.



VIEW LOOKING EAST.

THE GARDNER MEMORIAL CHURCH, CAIRO.

SIR HERBERT BAKER, R.A., F.R.I.B.A., Architect.

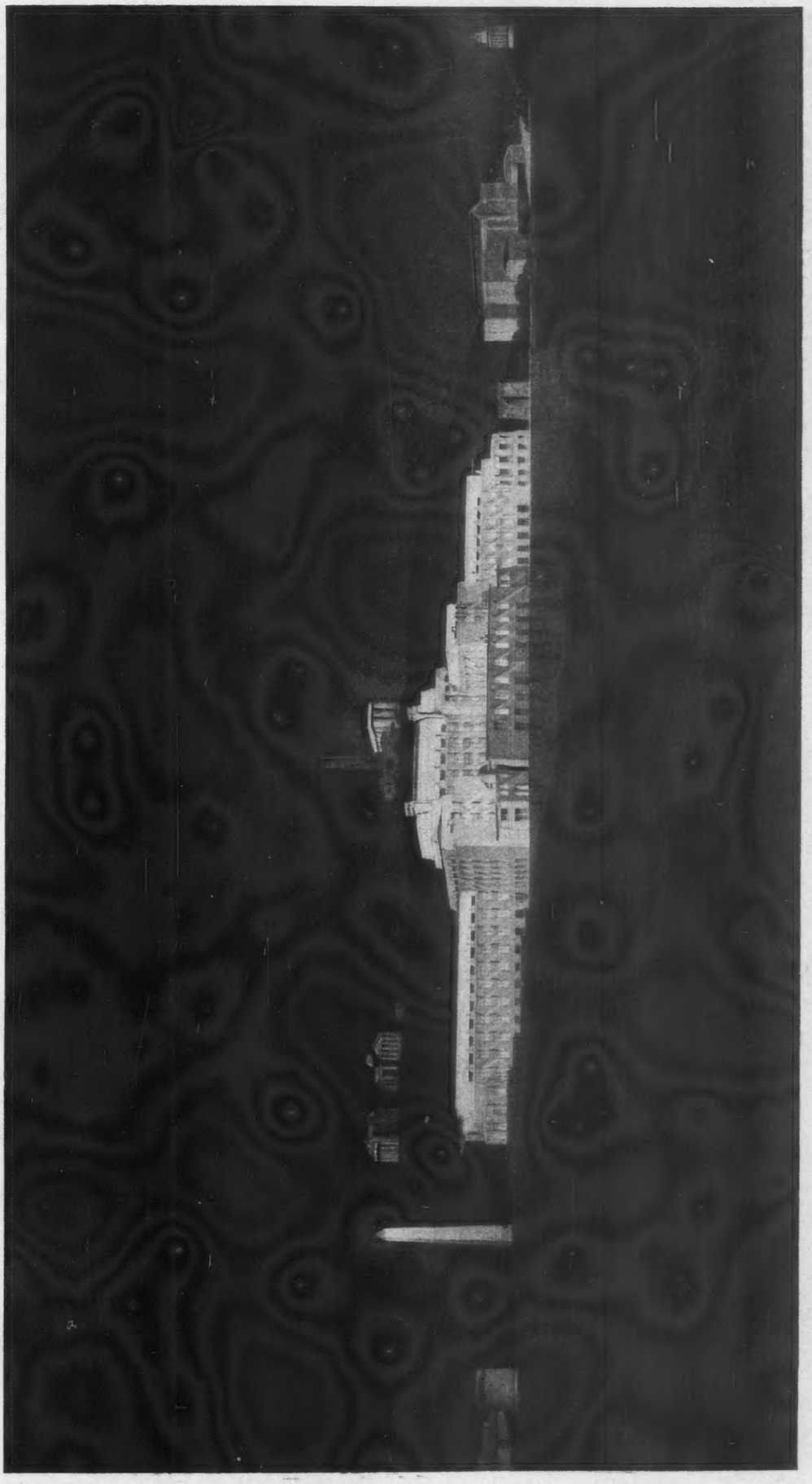


ST. HILDA'S COLLEGE, OXFORD : The New Library.

SIR EDWIN COOPER, A.R.A., Architect.

ST. HILDA'S COLLEGE, OXFORD : The New Library.

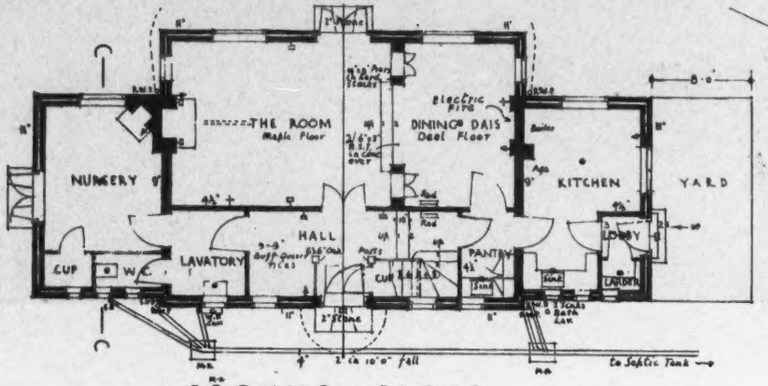
SIR EDWIN COOPER, A.R.A., Architect.



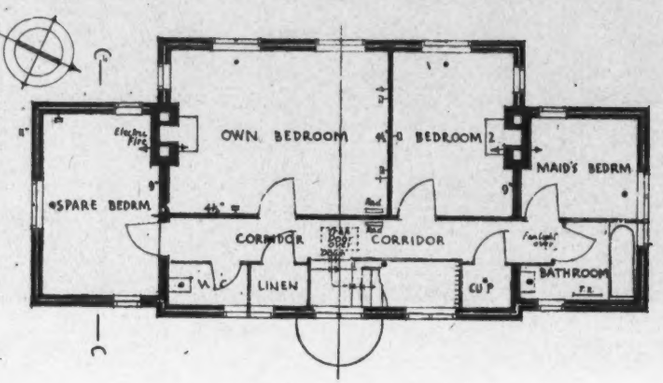
NEW GOVERNMENT BUILDINGS, EDINBURGH: View from South:
MR. THOMAS S. TAIT, F.R.I.B.A. (SIR JOHN BURNET, TAIT & LORNE), Architect.

Photo : Nancy Higgs.

GARDEN FRONT.



GROUND FLOOR



FIRST FLOOR

"PRETIOUS FIELD," NORTHIAM, SUSSEX.

MR. EDWARD MAUFE, M.A., F.R.I.B.A., Architect.

ENTRANCE FRONT.

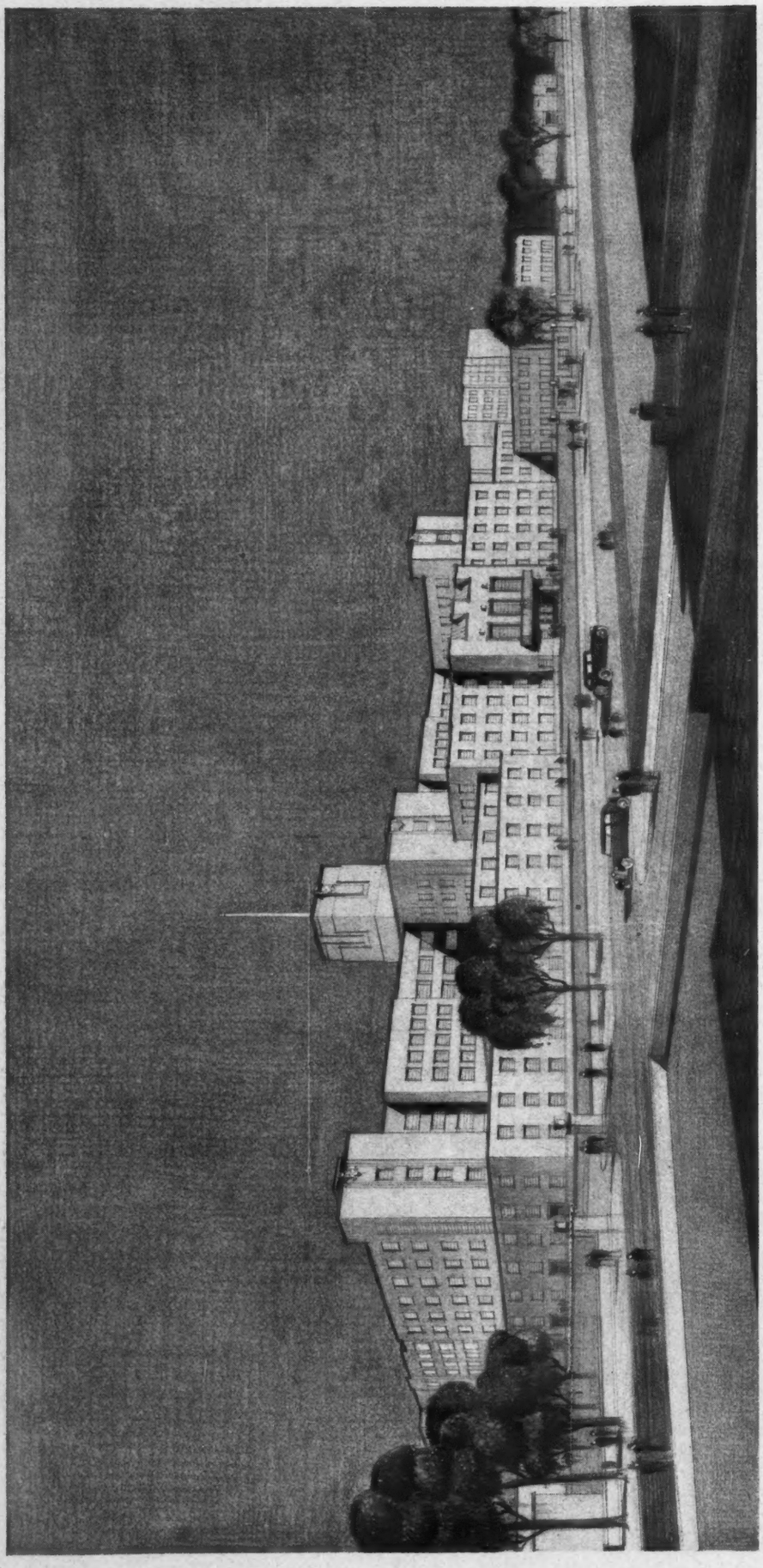
Photos : Nancy Higgs.

LIVING ROOM, LOOKING INTO DINING DAIS.

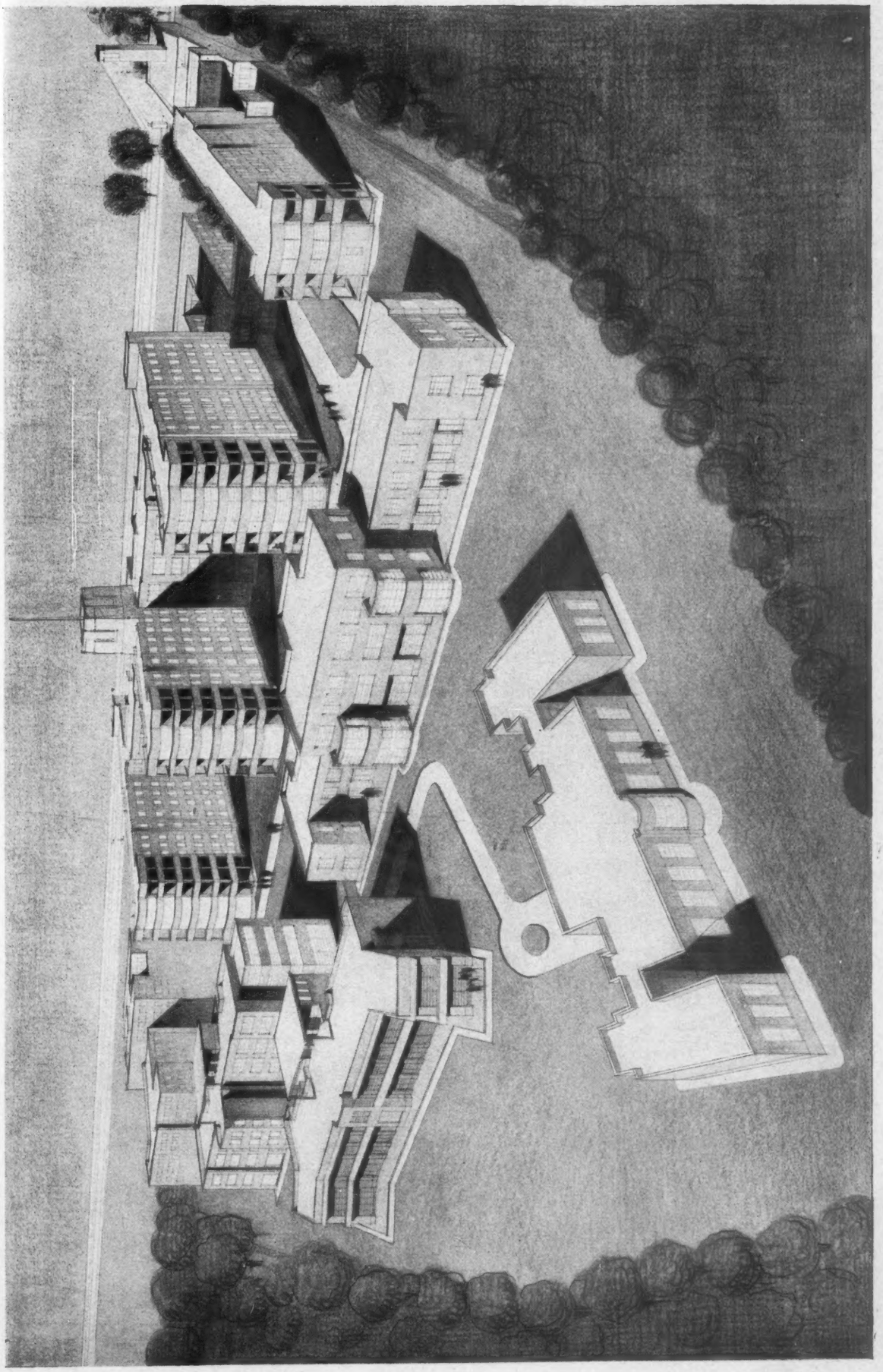
"PRETIOUS FIELD," NORTHIAM, SUSSEX.

MR. EDWARD MAUFE, M.A., F.R.I.B.A., Architect.

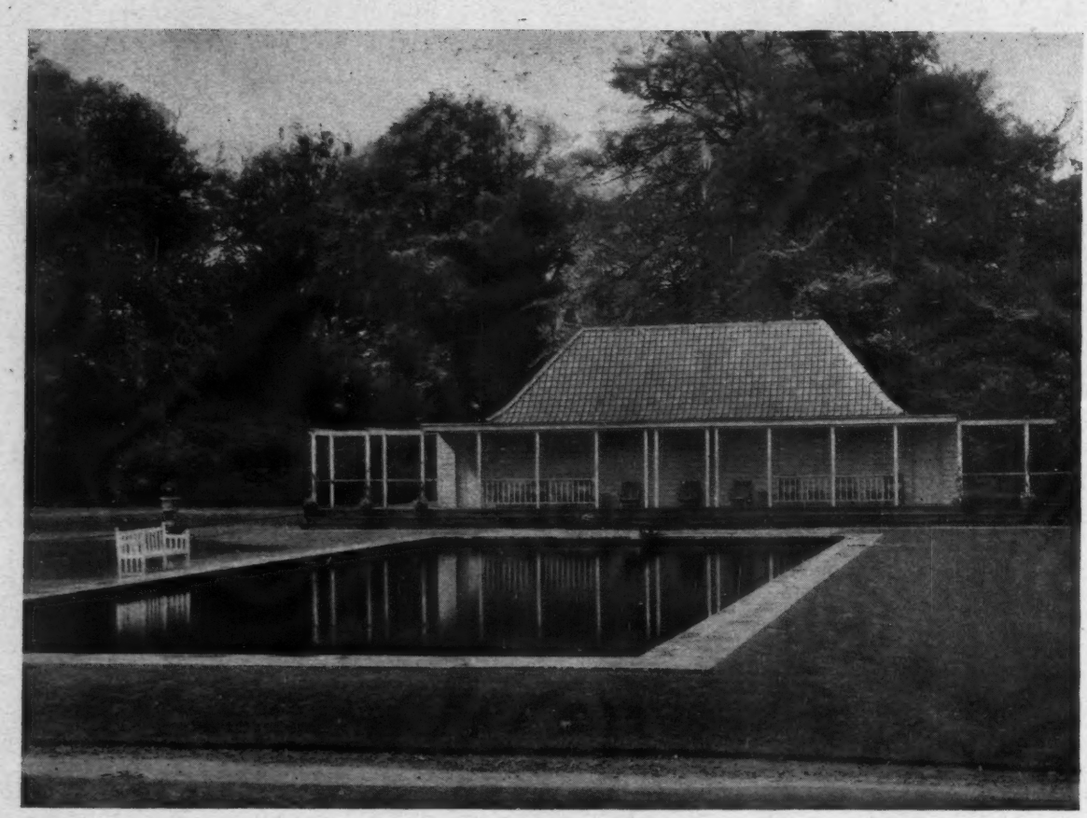
"PRETIOUS FIELD," NORTHIAM, SUSSEX.
MR. EDWARD MAUFE, M.A., F.R.I.B.A., Architect.



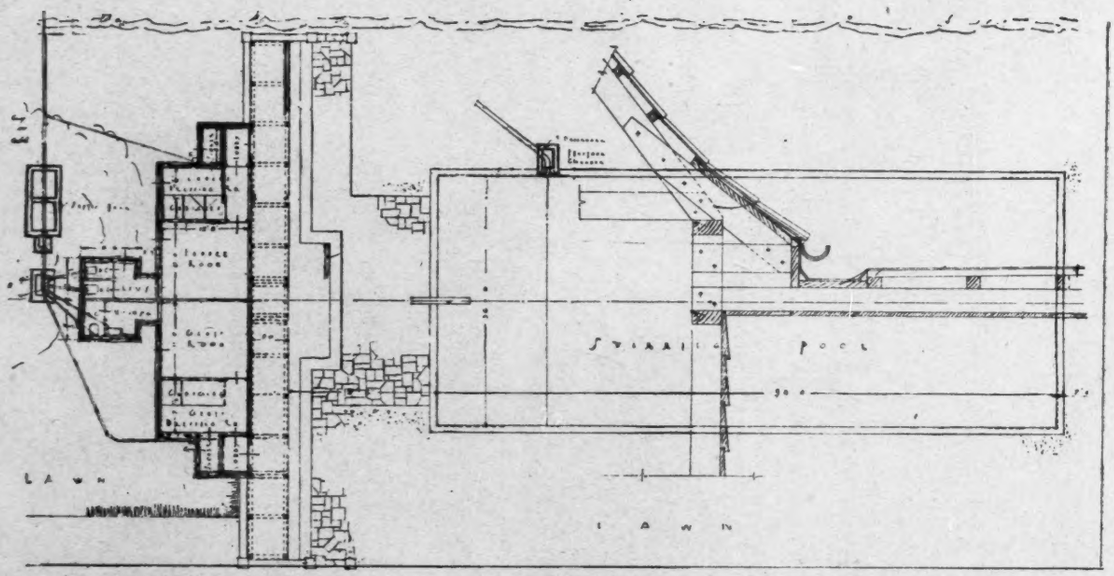
ST. HELIER HOSPITAL: View from North-East.
MESSRS. A. SAXON SNELL AND PHILLIPS, FF.R.I.B.A., Architects.



ST. HELIER HOSPITAL : Bird's-eye View, from South.
MESSRS. A. SAXON SNELL AND PHILLIPS FF.R.I.B.A., Architects.



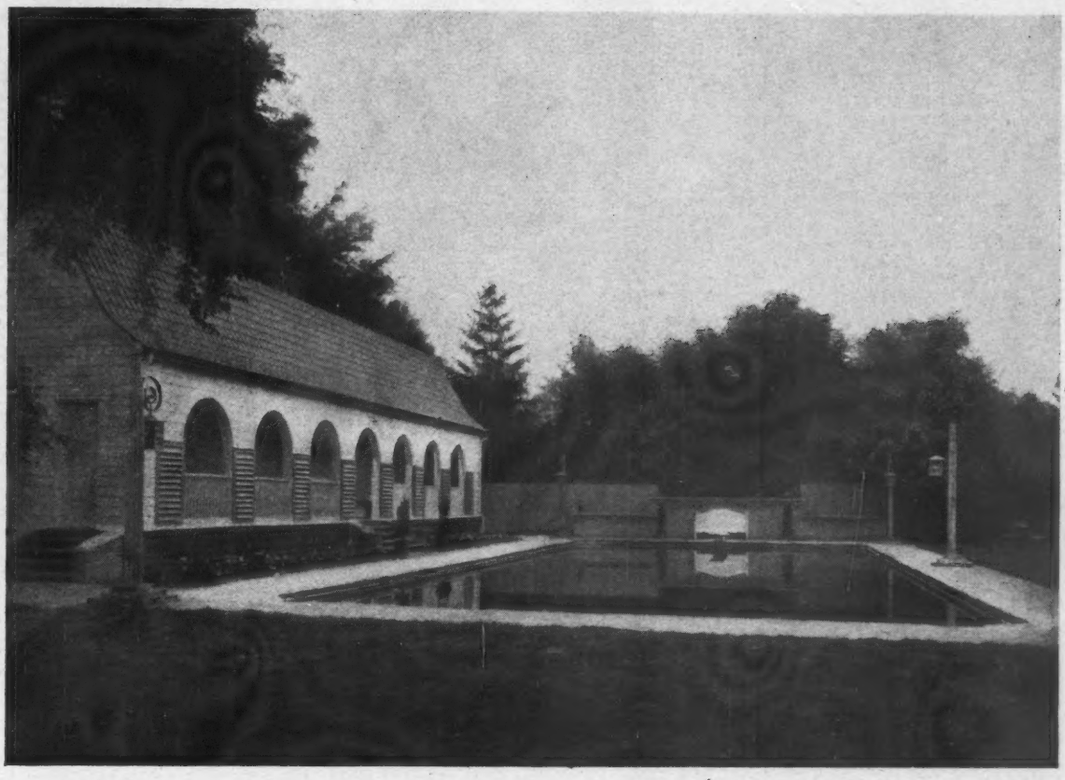
GENERAL VIEW OF POOL AND PAVILION.



PLAN AND DETAILS.

SWIMMING POOL, NEWTON HOUSE HOTEL, LONDONDERRY, YORKS.

MR. E. M. LAWSON, A.R.I.B.A., Architect.

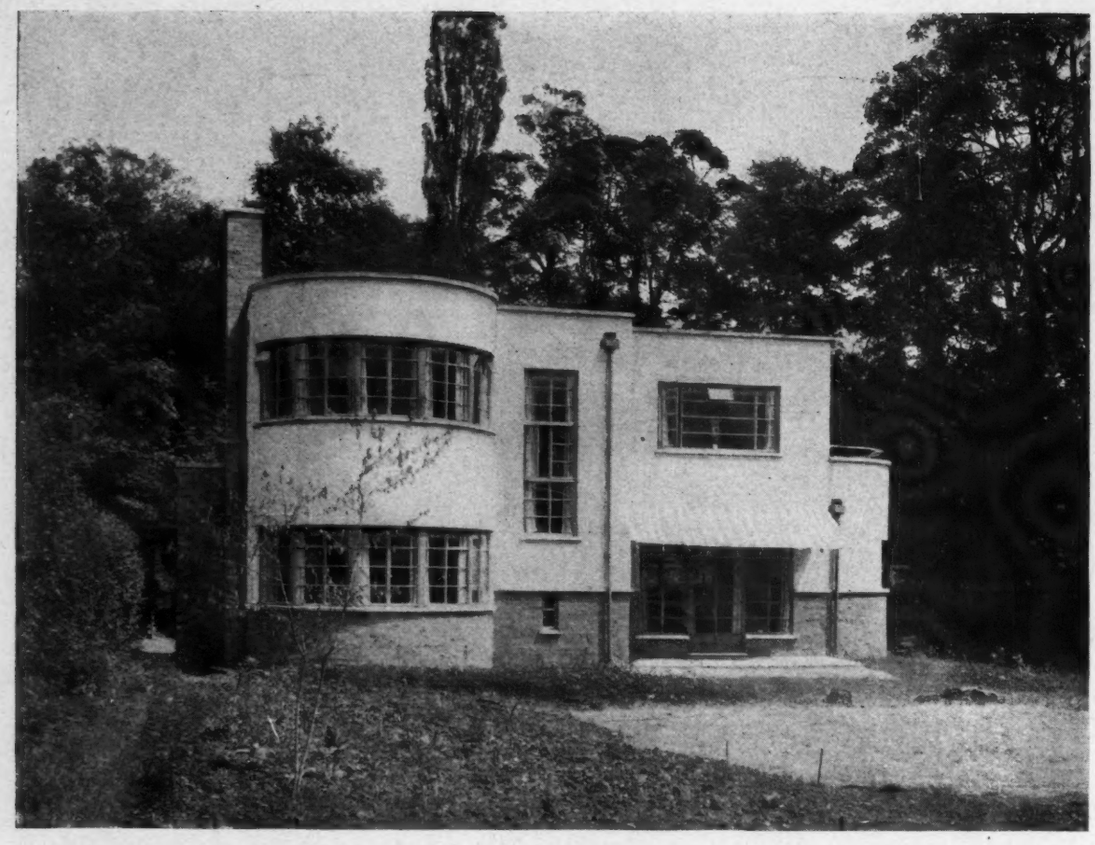


GENERAL VIEW OF PAVILION AND POOL.

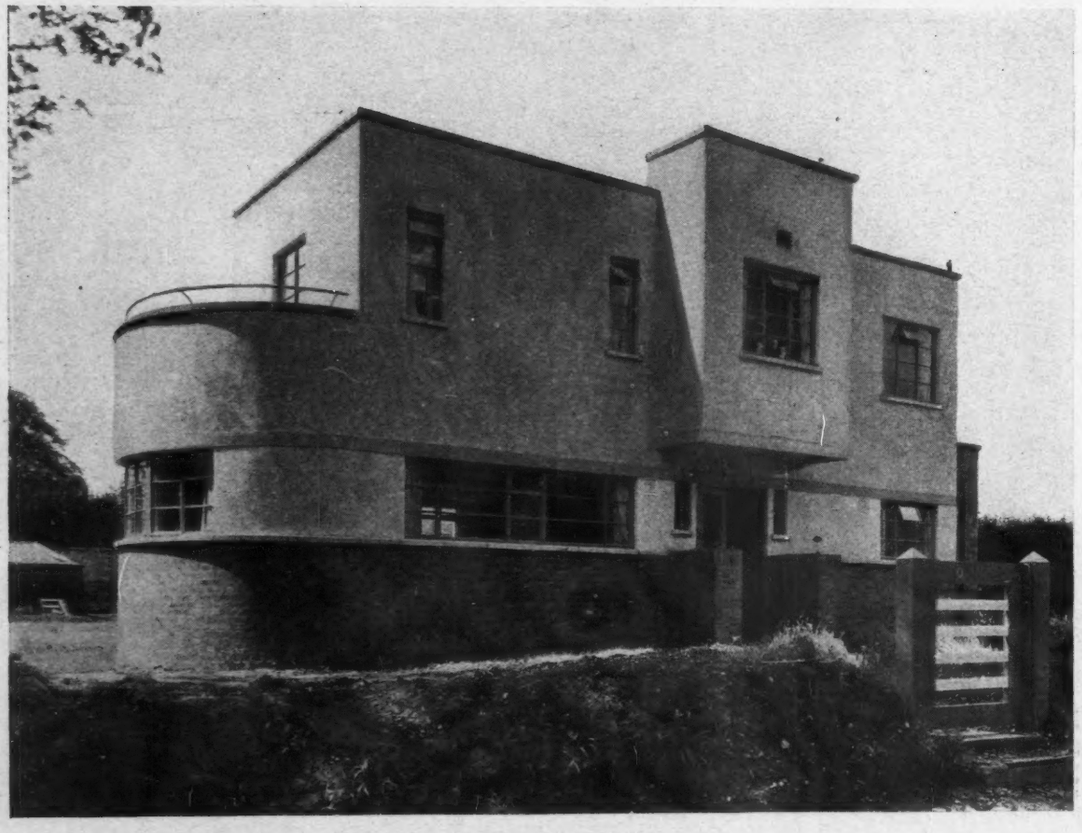
VIEW FROM PAVILION VERANDAH.

SWIMMING POOL, "THREE ARROWS" HOTEL, BOROUGHBRIDGE, YORKS.

MR. E. M. LAWSON, A.R.I.B.A., Architect.



VIEW FROM GARDEN AND SOUTH.

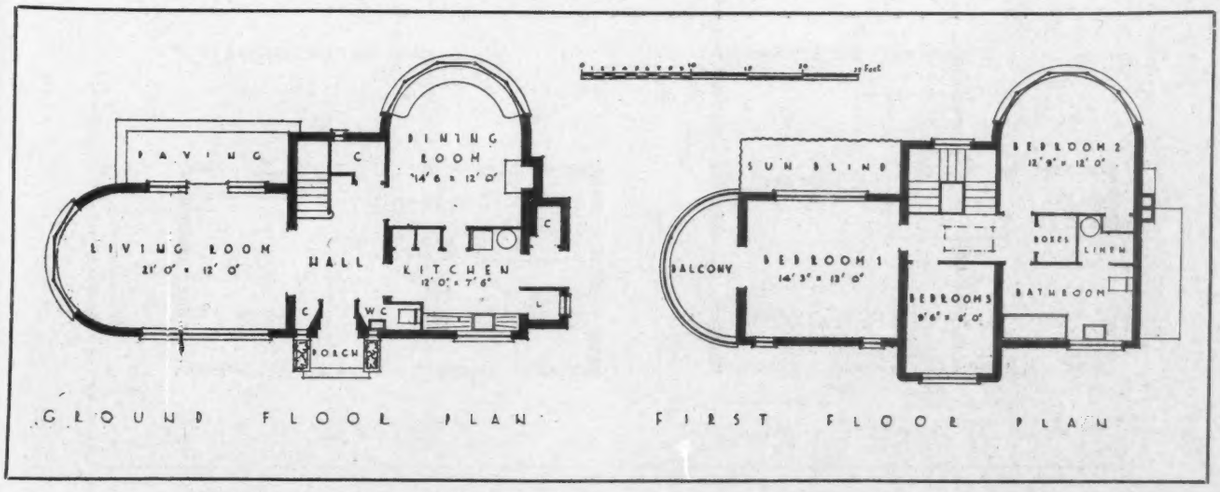


VIEW OF ENTRANCE FRONT.

A HOUSE AT ENFIELD.

MESSRS. BAYES AND BISHOP, A.R.I.B.A., P.A.S.I., Architects.

THE LIVING ROOM.

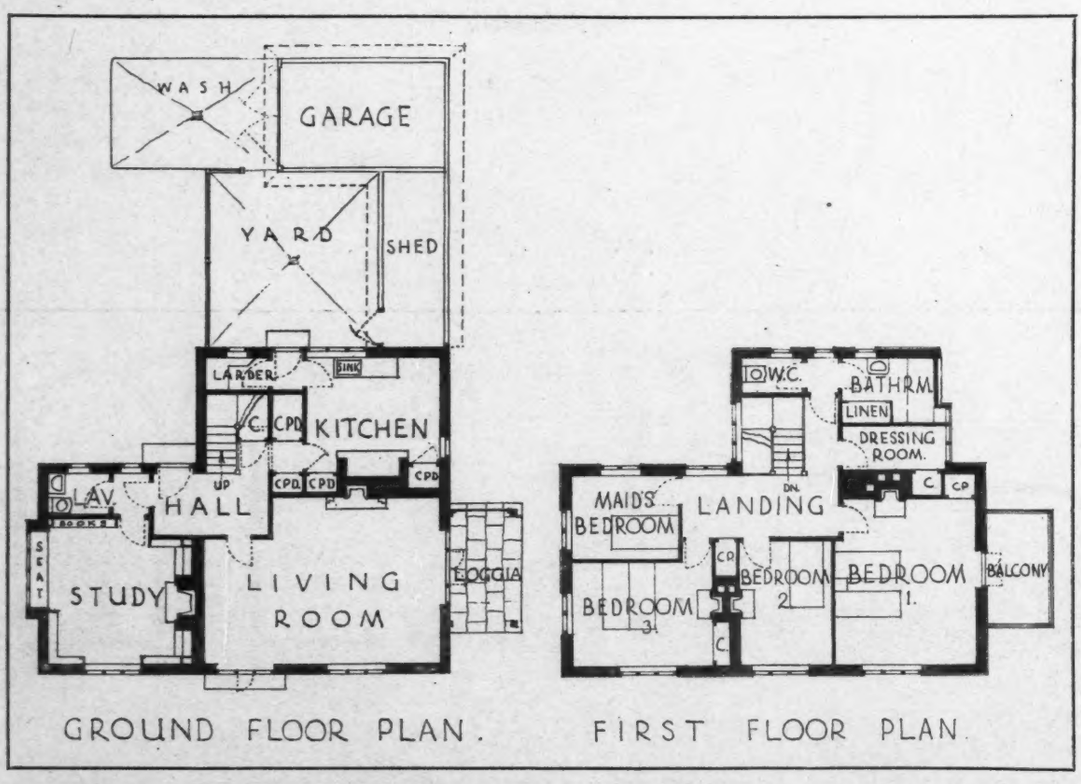


A HOUSE AT ENFIELD.

MESSRS. BAYES AND BISHOP, A.R.I.B.A., P.A.S.I., Architects.

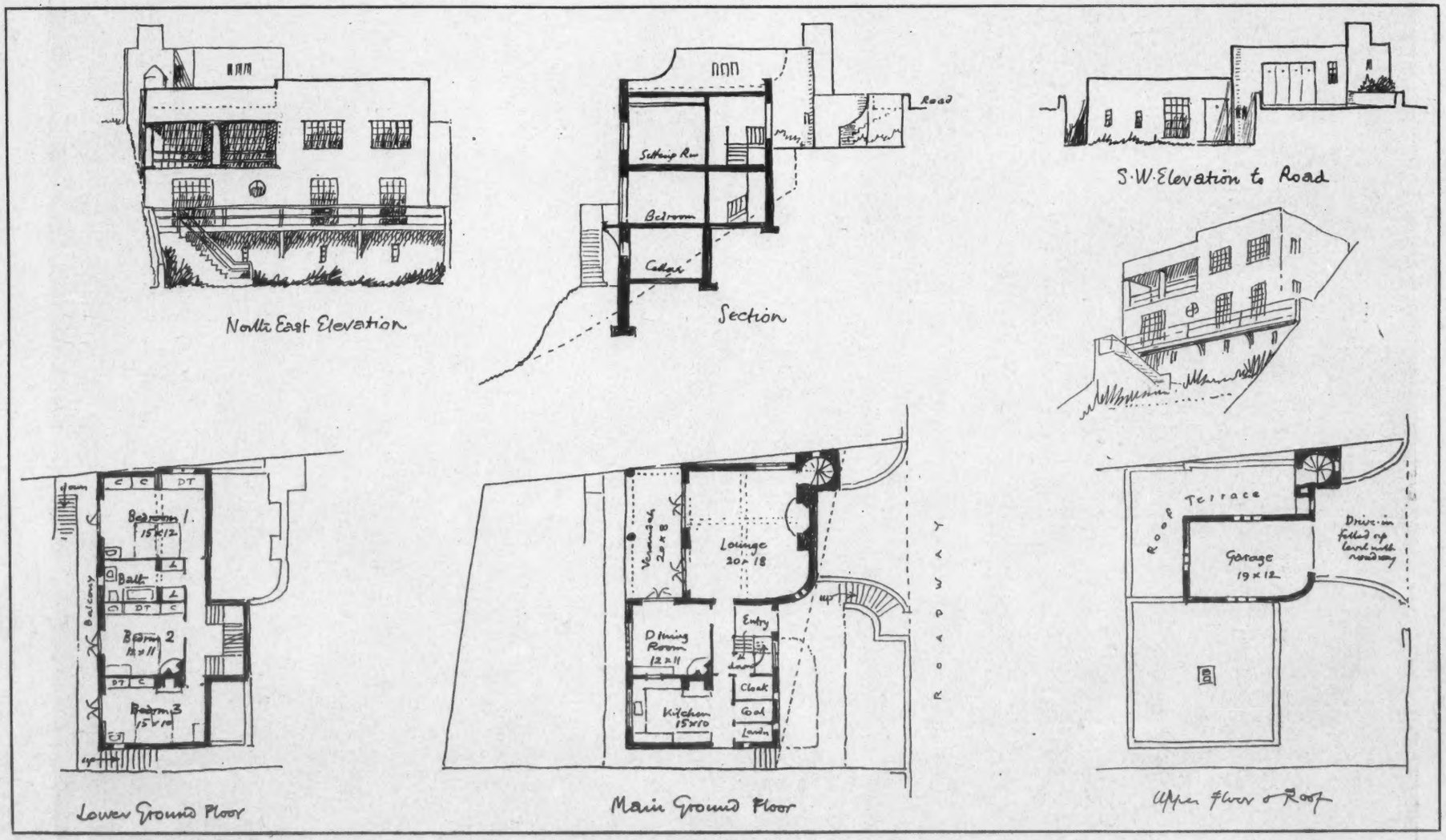
From a Water-colour Drawing by Mr. M. H. Baillie Scott, F.R.I.B.A.

PERSPECTIVE VIEW



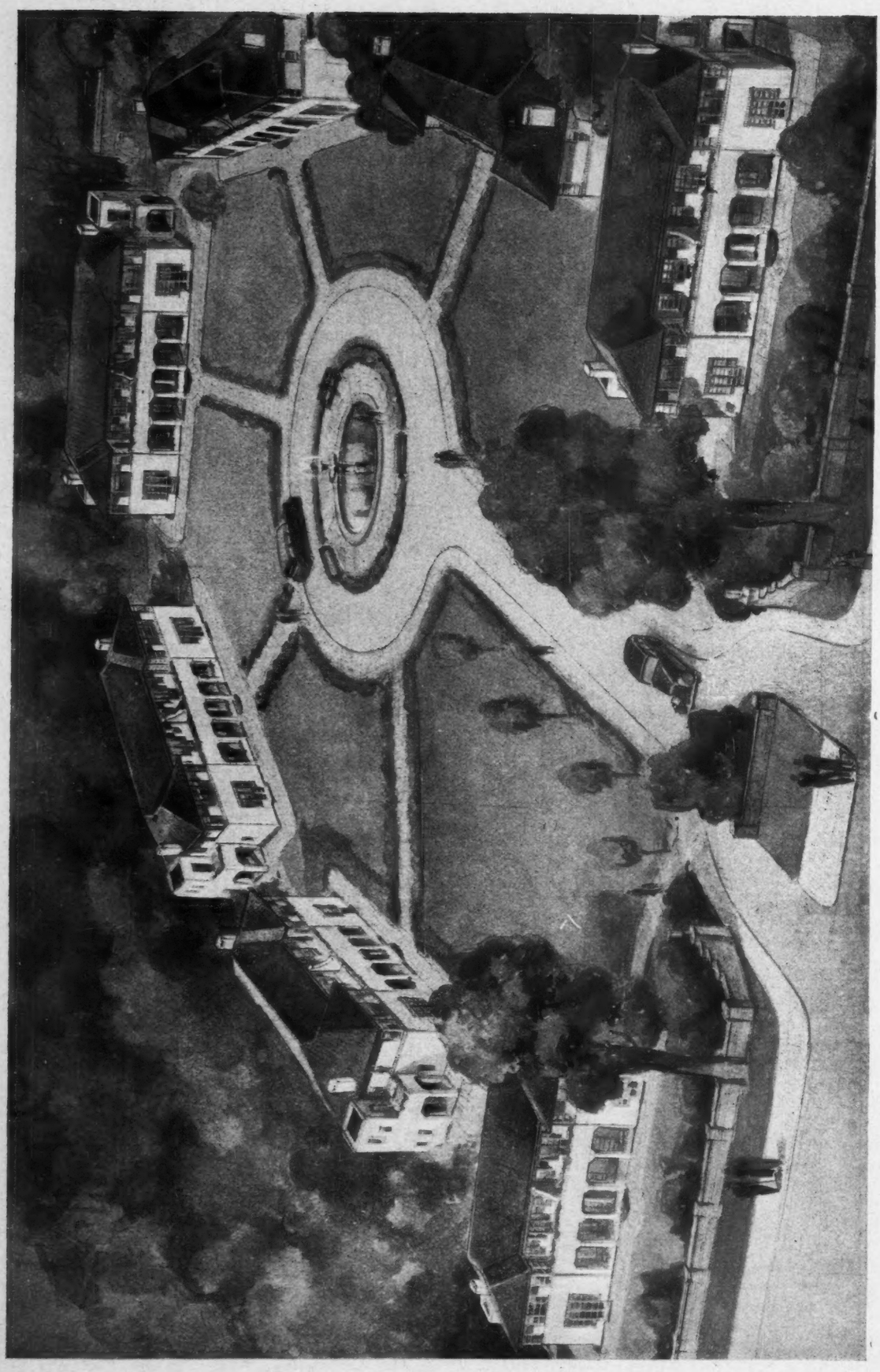
A HOUSE AT WENDENS AMBO, ESSEX.

MR. EDGAR BERESFORD (Messrs. Baillie Scott and Beresford, FF.R.I.B.A.), Architect.



A PROPOSED HOUSE AT CAWSAND, CORNWALL.

MR. EDGAR BERESFORD (Messrs. Baillie Scott and Beresford, FF.R.I.B.A.), Architect.



"COLEBROOK CLOSE," WEST HILL, PUTNEY HEATH, S.W.: Bird's-eye View.
MESSRS. MARSHALL AND TWEEDY, FF.R.I.B.A., Architects.

SUN PORCH OF A GROUND-FLOOR FLAT.

VERANDAH OF A FIRST-FLOOR FLAT.

Photos: Herbert Fitch & Co., Ltd.

"COLEBROOK CLOSE," WEST HILL, PUTNEY HEATH, S.W.

MESSRS. MARSHALL AND TWEEDY, FF.R.I.B.A., Architects.

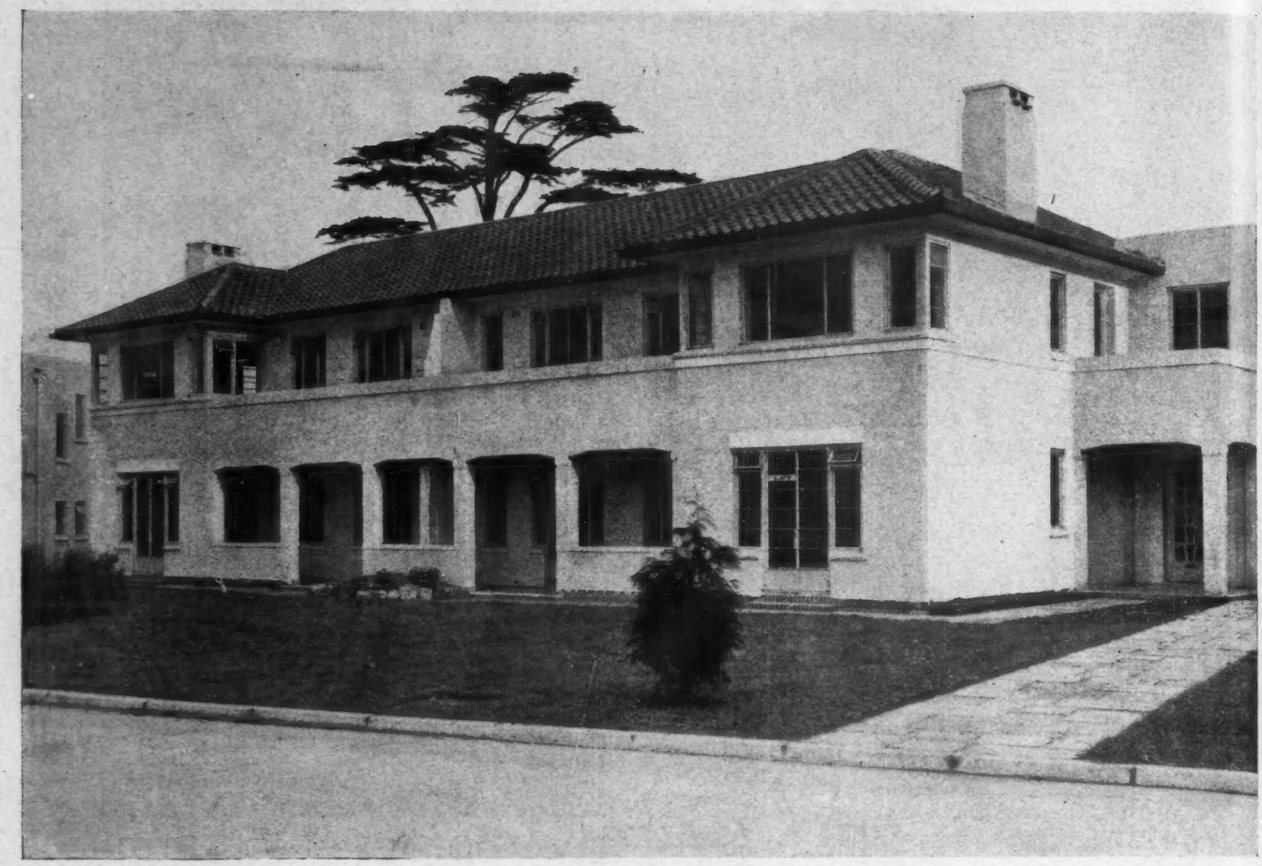
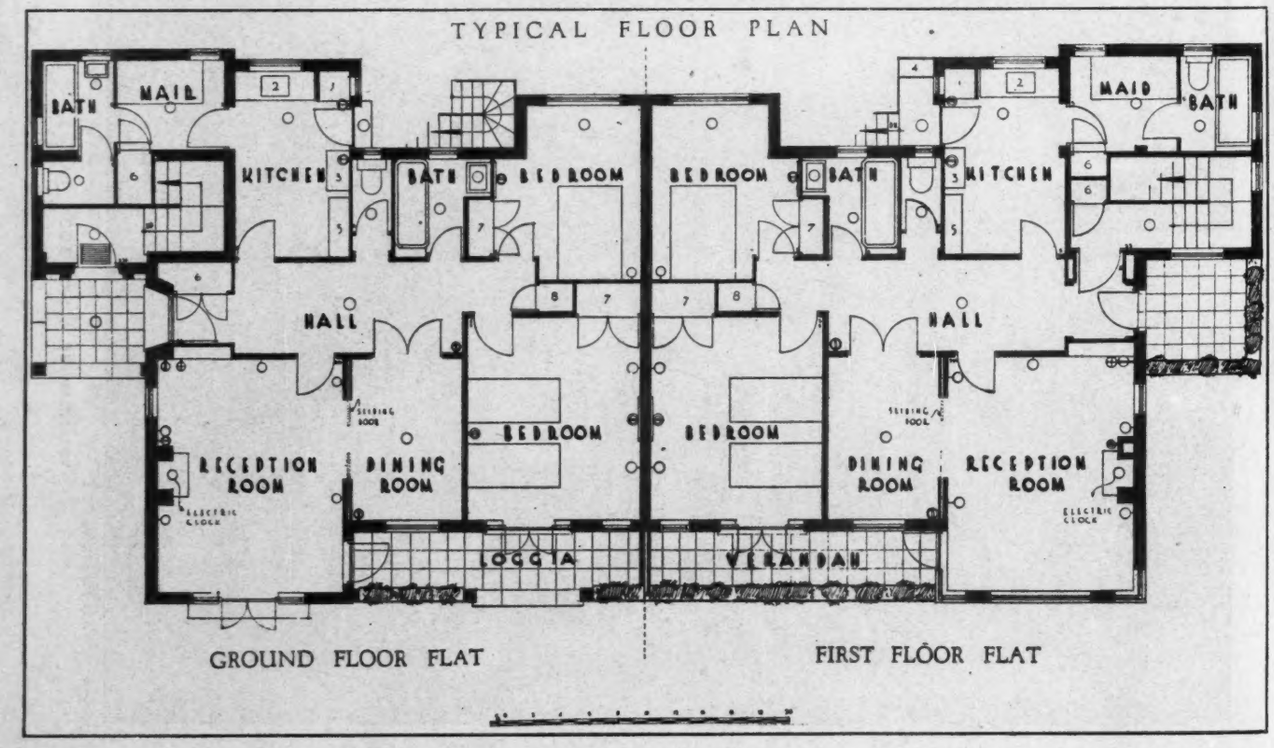


Photo: Herbert Fitch & Co., Ltd.

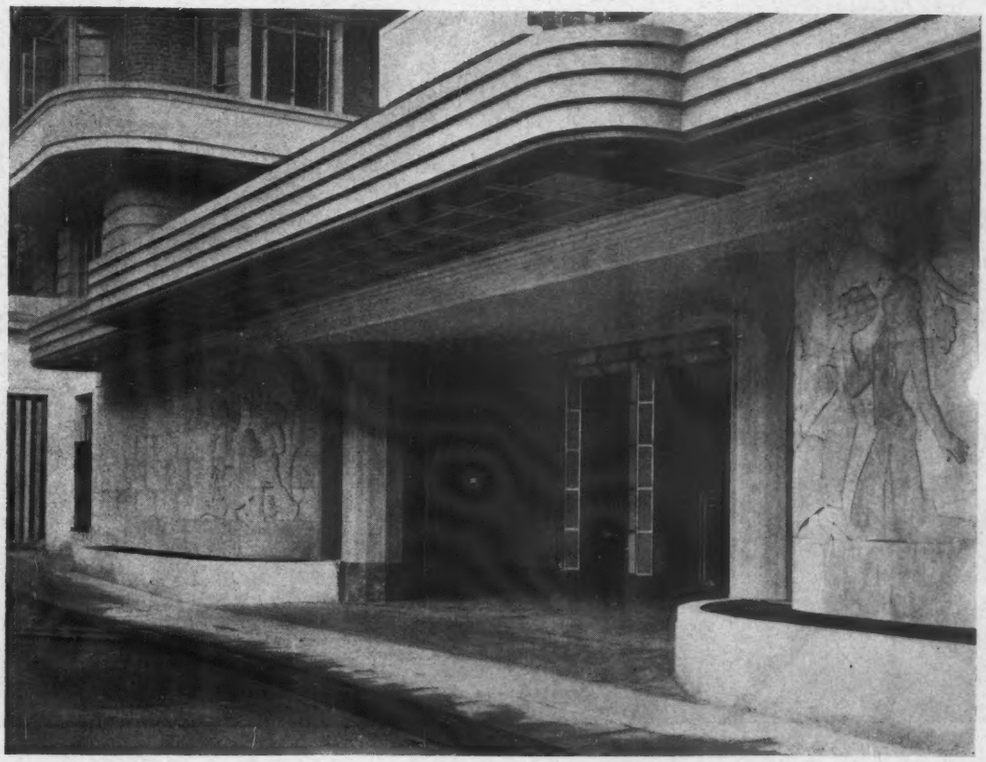
ONE OF THE BUILDINGS (CONTAINING FOUR FLATS).



"COLEBROOK CLOSE," WEST HILL, PUTNEY HEATH, S.W.

MESSRS. MARSHALL AND TWEEDY, FF.R.I.B.A., Architects.

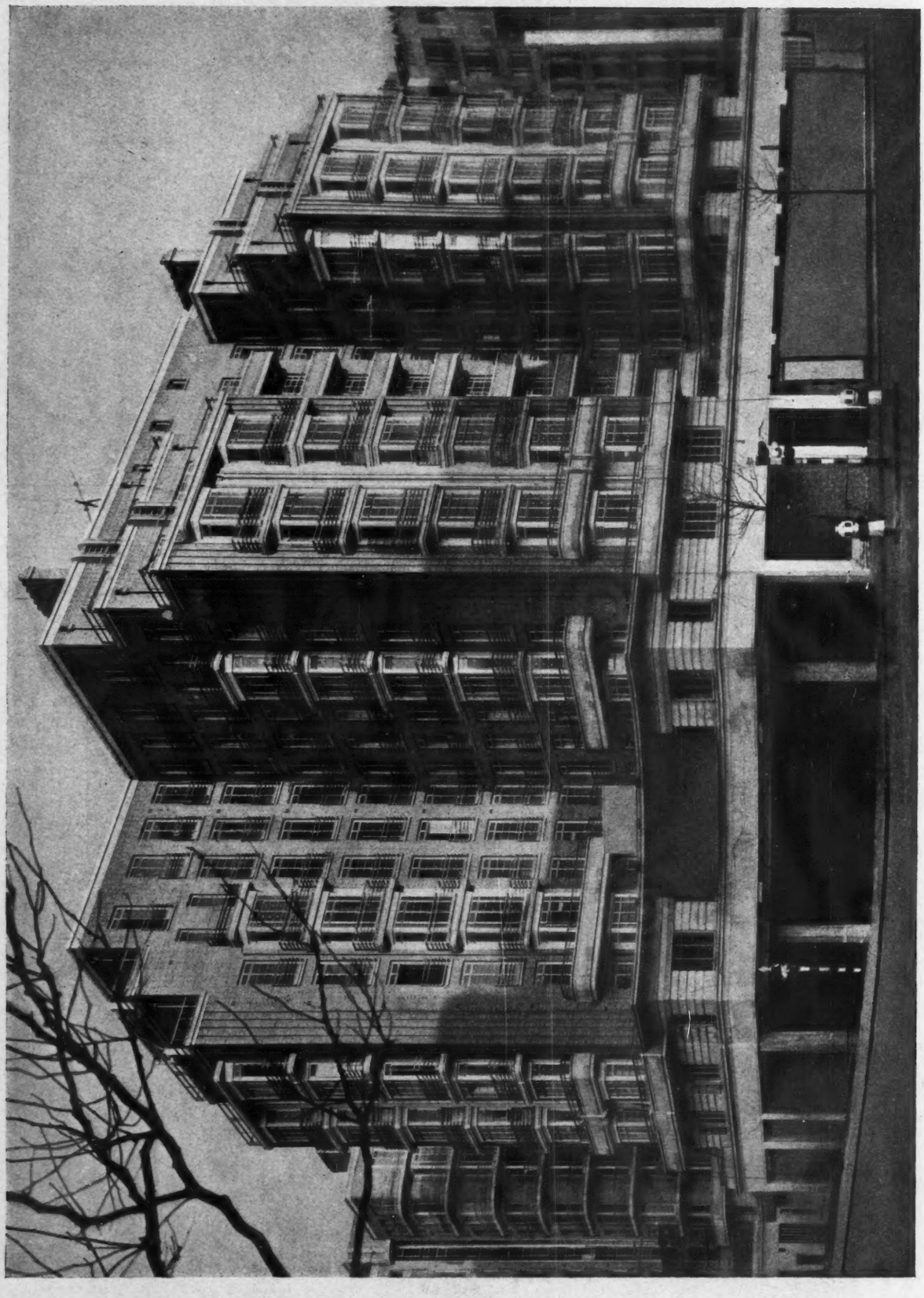
SIDE ELEVATION.



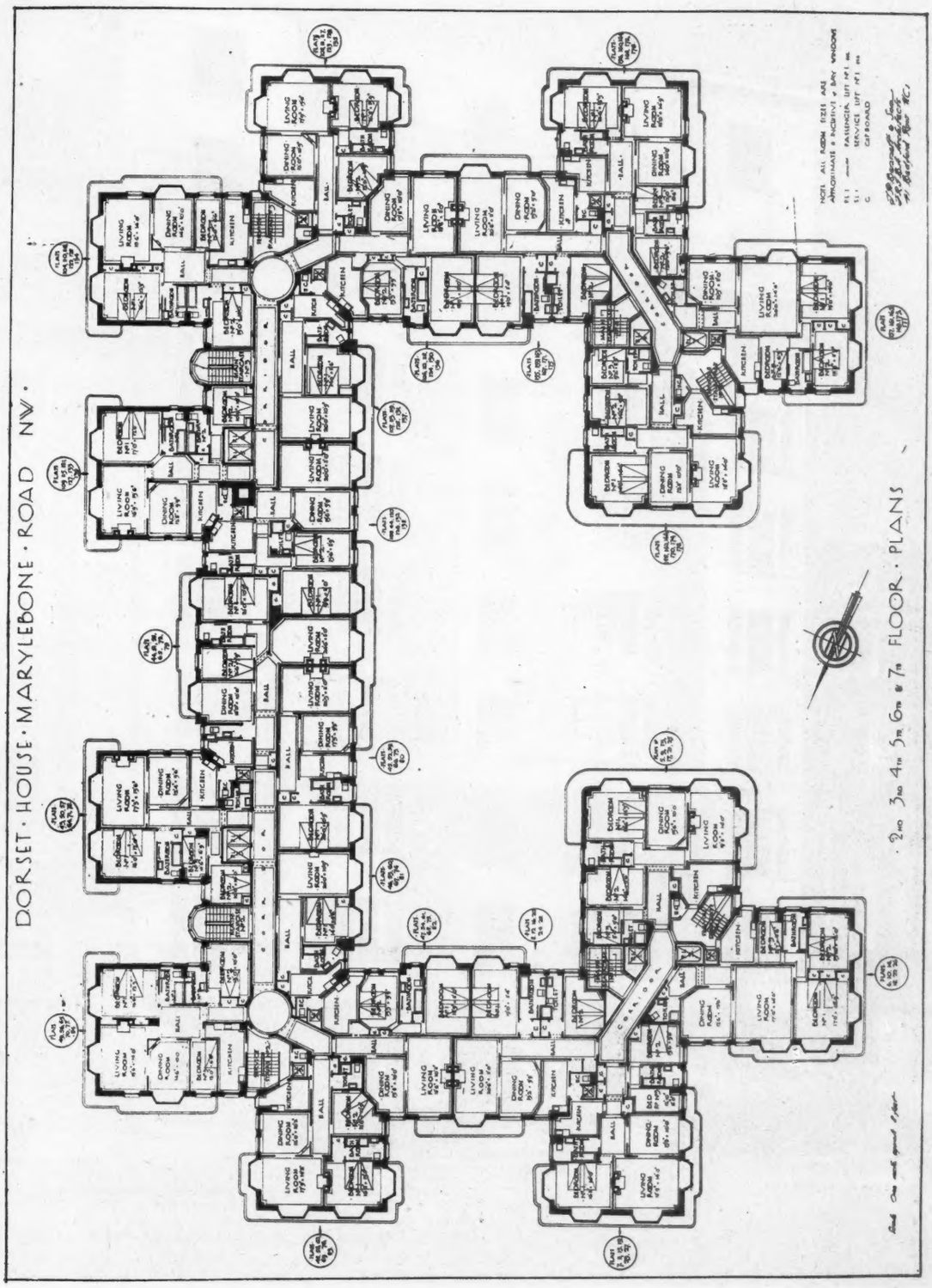
DETAIL OF ENTRANCE.

"DORSET HOUSE," MARYLEBONE ROAD, N.W.

MESSRS. T. P. BENNETT AND SON, F.R.I.B.A., Architects.



"DORSET HOUSE," MARYLEBONE ROAD, N.W.
MESSRS. T. P. BENNETT AND SON, F.R.I.B.A., Architects.

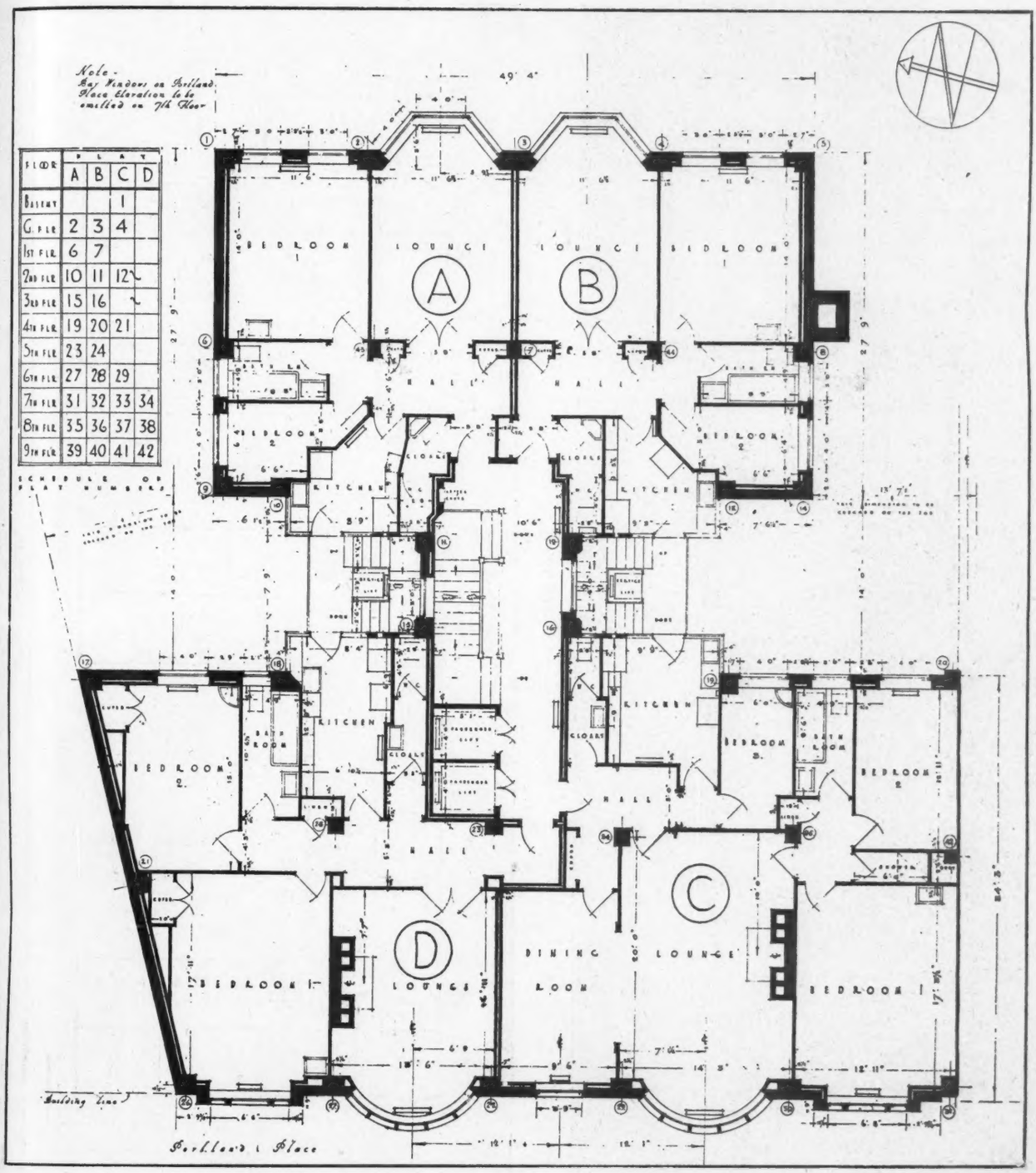


"DORSET HOUSE," MARYLEBONE ROAD, N.W.

MESSRS. T. P. BENNETT AND SON, F.R.I.B.A., Architects.

NOS. 88 AND 90, PORTLAND PLACE, W.

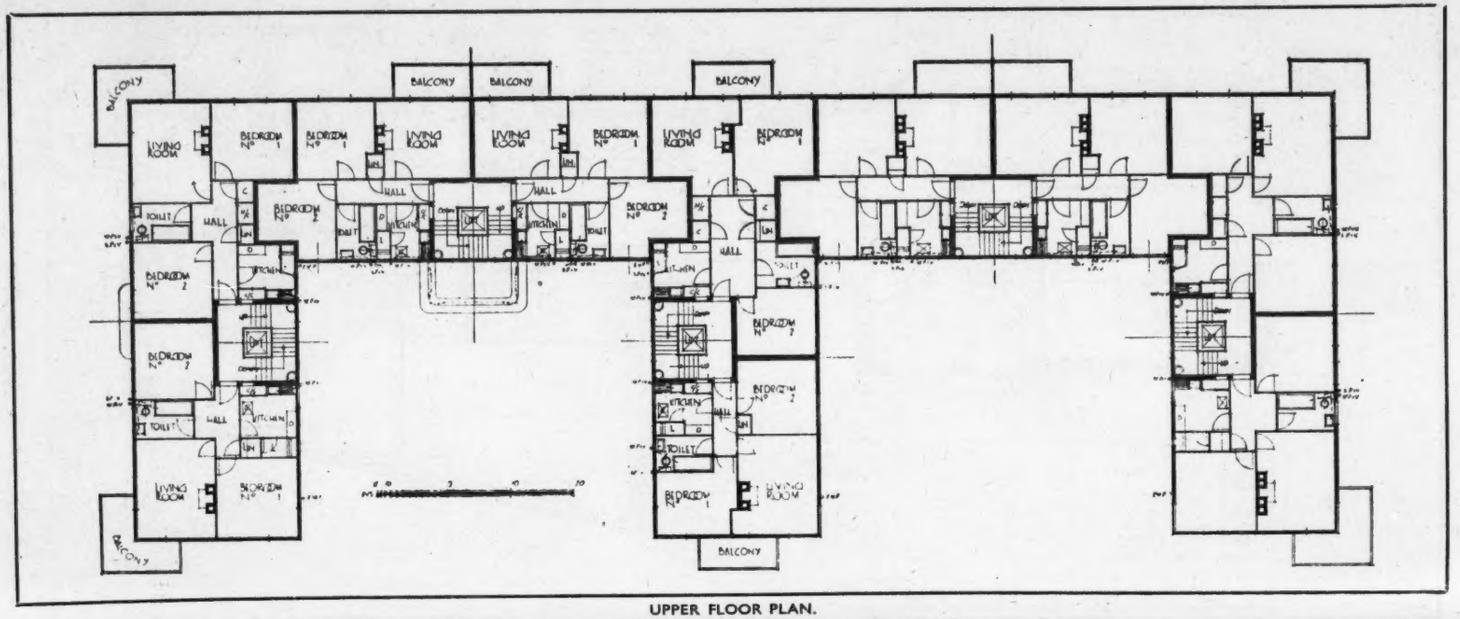
MESSRS. TREHEARNE AND NORMAN, PRESTON & CO., Architects.



NOS. 88 AND 90, PORTLAND PLACE, W. : Typical Plan, First to Seventh Floors

MESSRS. TREHEARNE AND NORMAN, PRESTON & CO., Architects.

PERSPECTIVE VIEW.



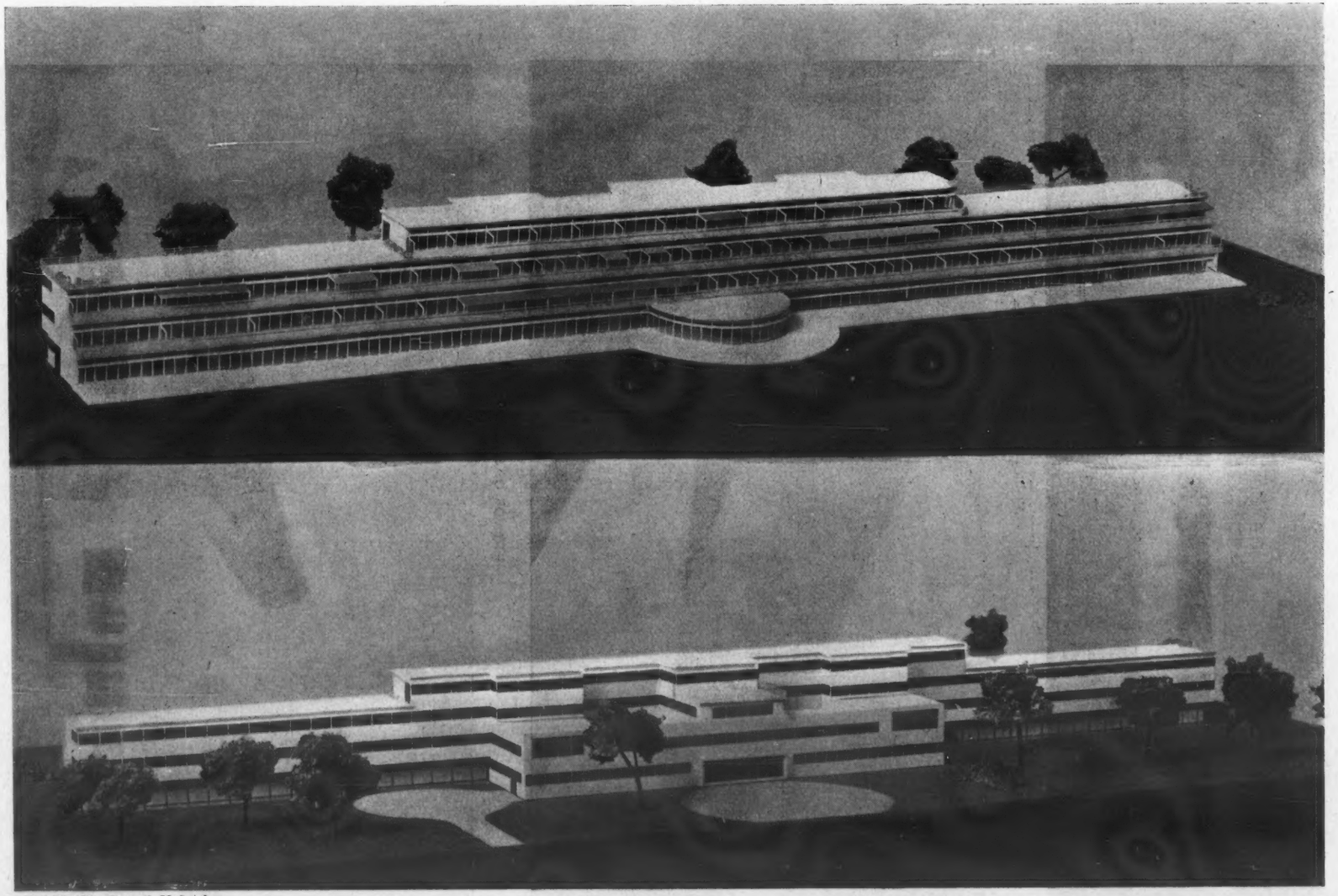
UPPER FLOOR PLAN.

FLATS AT PORTLAND ROAD, HOVE.

MR. JOSEPH HILL, F.R.I.B.A., Architect.

FLATS AT PORTLAND ROAD, HOVE.

MR. JOSEPH HILL, F.R.I.B.A., Architect.



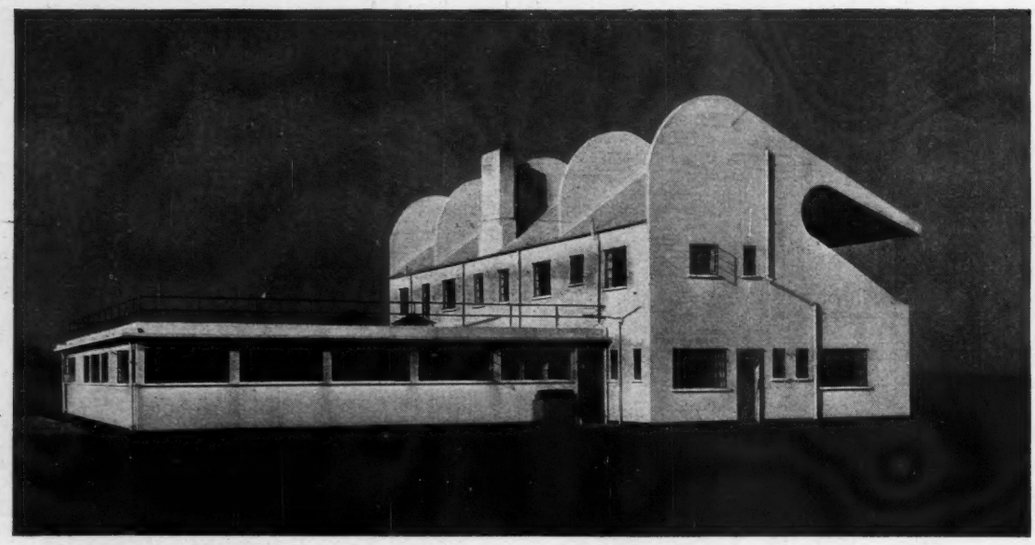
Model by Mr. Kenneth McCutchon.

Top—SOUTH ELEVATION, SHOWING CONTINUOUS BALCONIES AND SLIDING GLASS WINDOWS TO WARDS.

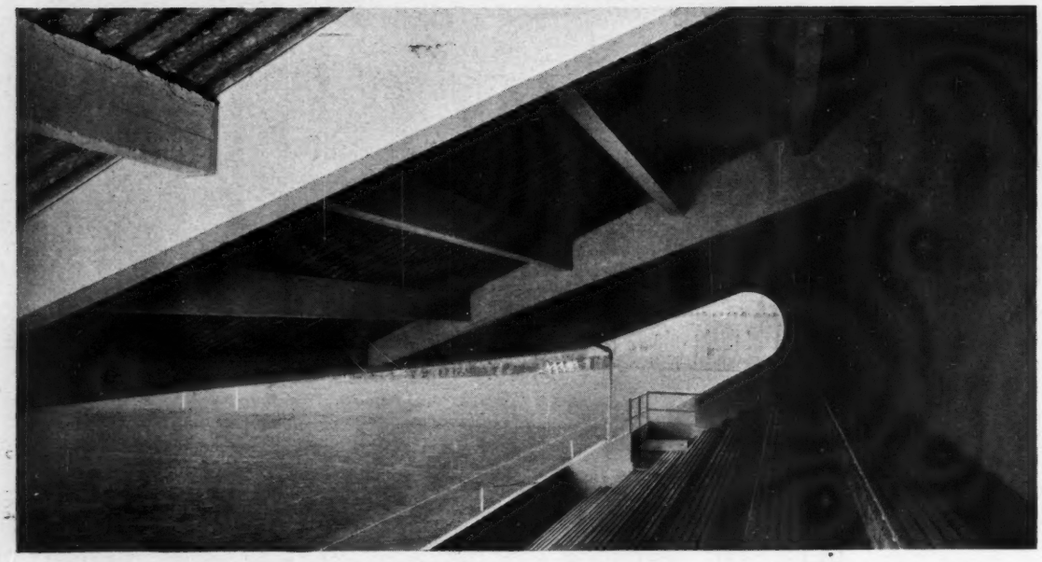
Below—NORTH ELEVATION, SHOWING ADMINISTRATION OFFICES, KITCHENS, SANITATION, X-RAY DEPARTMENT, OPERATING THEATRE AND LABORATORIES.

MODEL OF DESIGN FOR CHILDREN'S HOSPITAL.

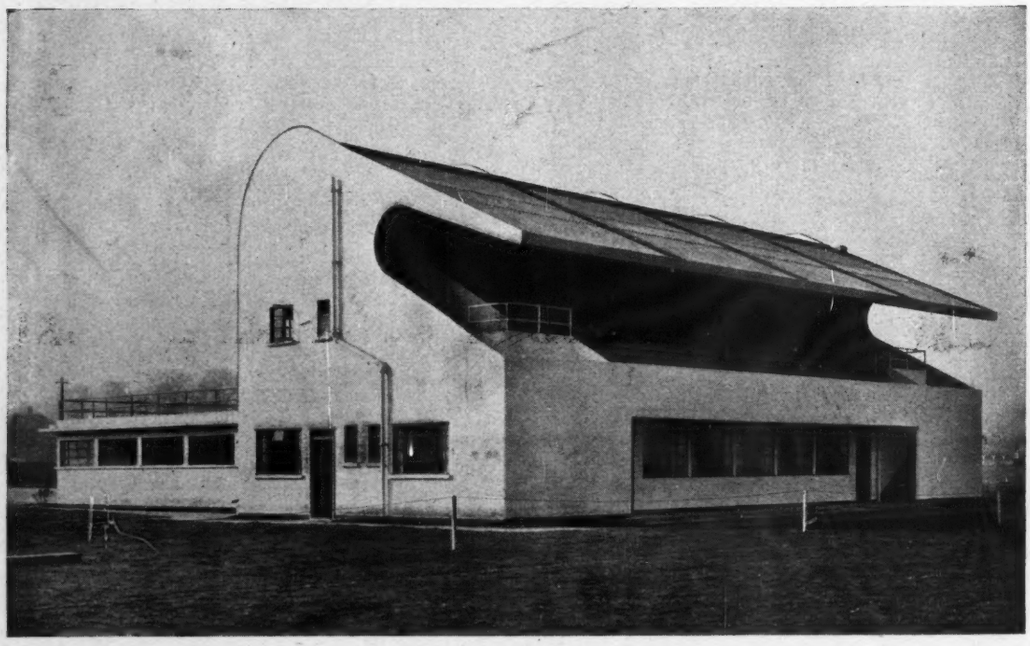
BY MR. OLIVER HILL, F.R.I.B.A.



REAR VIEW.



INTERIOR OF STAND.

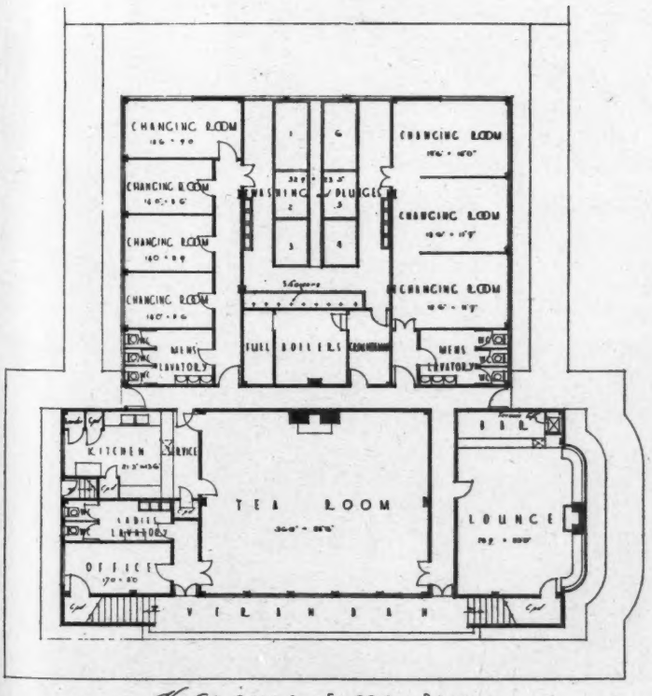


FRONT VIEW OF STAND.

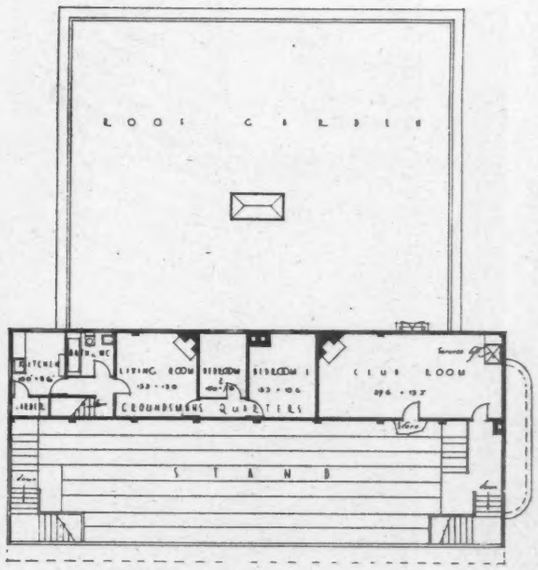
U.C.S. OLD BOYS' CLUB SPORTS PAVILION, OSTERLEY.

MESSRS. BRIAN L. SUTCLIFFE AND H. COLIN FARMER, F. and A.R.I.B.A., Architects.

THE LOUNGE.



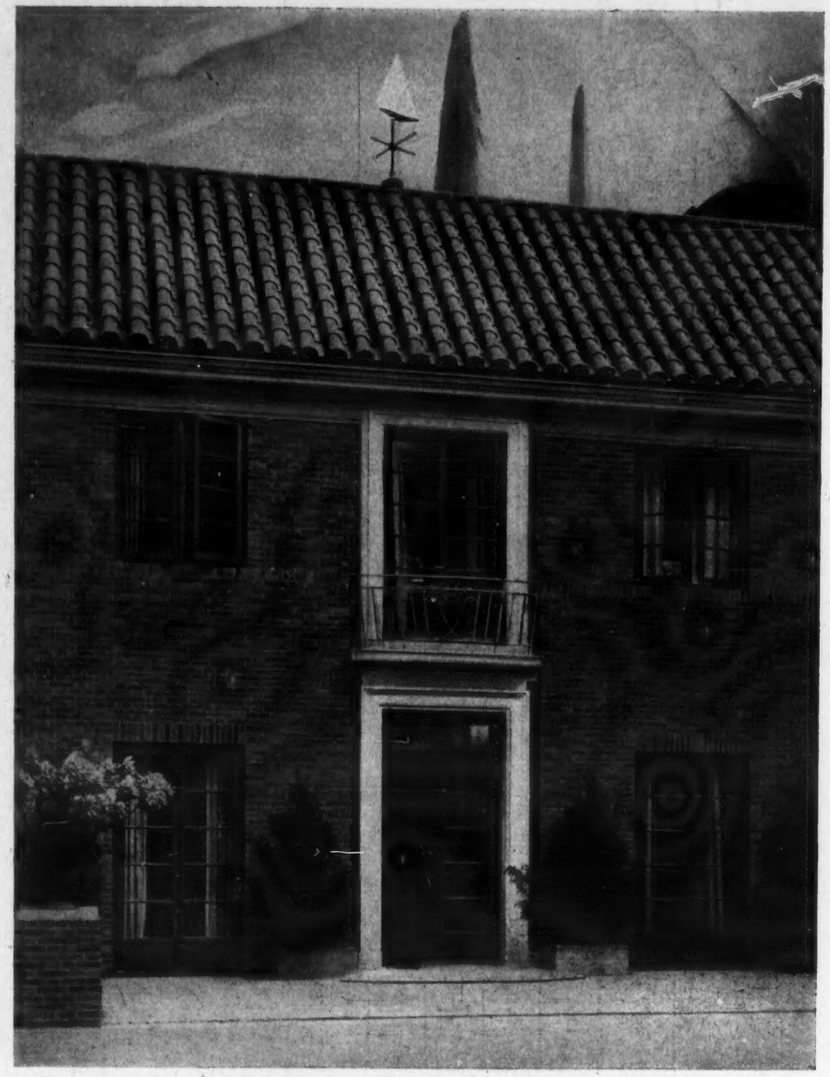
The GROUND FLOOR PLAN



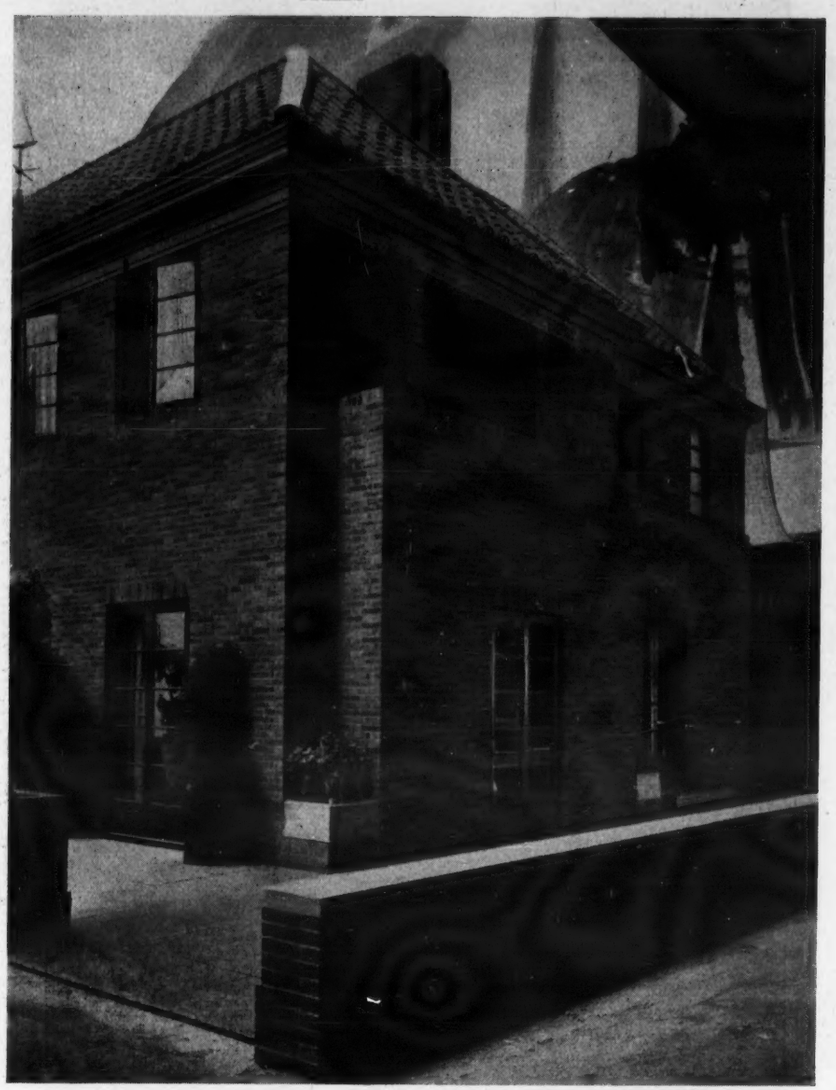
The FIRST FLOOR PLAN

U.C.S. OLD BOYS' CLUB SPORTS PAVILION, OSTERLEY.

MESSRS. BRIAN L. SUTCLIFFE, AND H. COLIN FARMER, F. & A.R.I.B.A., Architects.



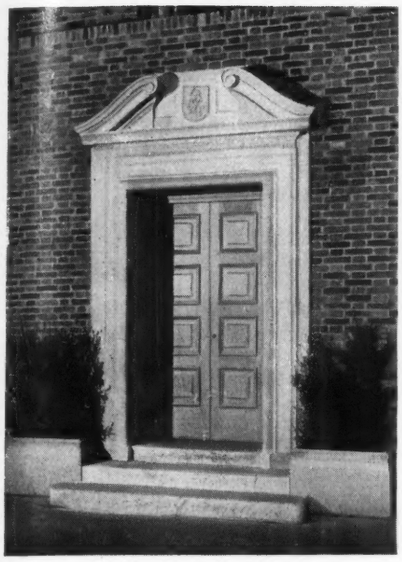
DETAIL OF GARDEN ELEVATION.



SIDE ELEVATION, SHOWING BALCONY TO PRINCIPAL BEDROOM.

THE KING'S HOUSE, BURHILL, SURREY.

MR. C. BERESFORD MARSHALL, F.R.I.B.A. (MESSRS. MARSHALL AND TWEEDY), Architect.

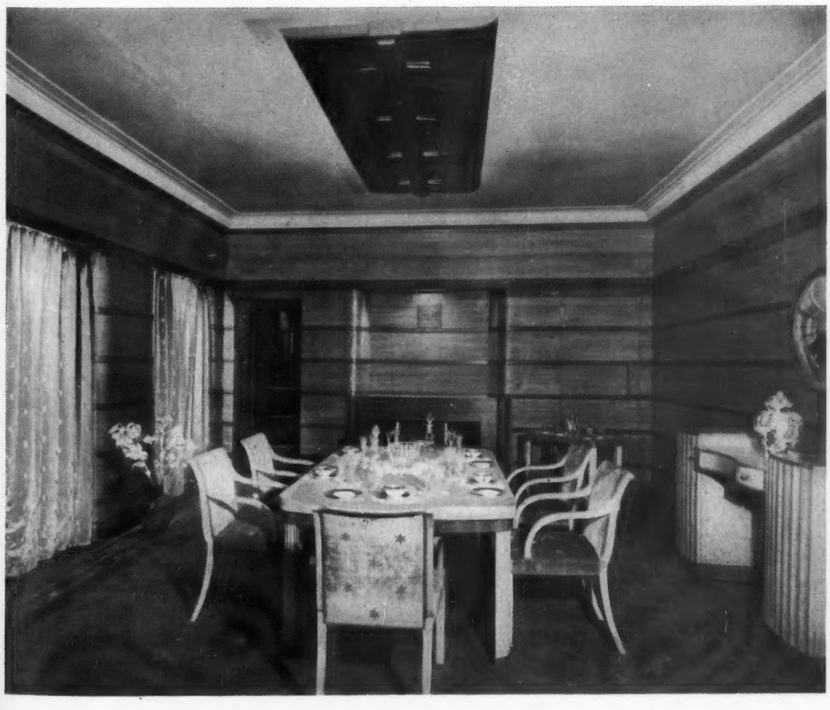


FRONT ENTRANCE.

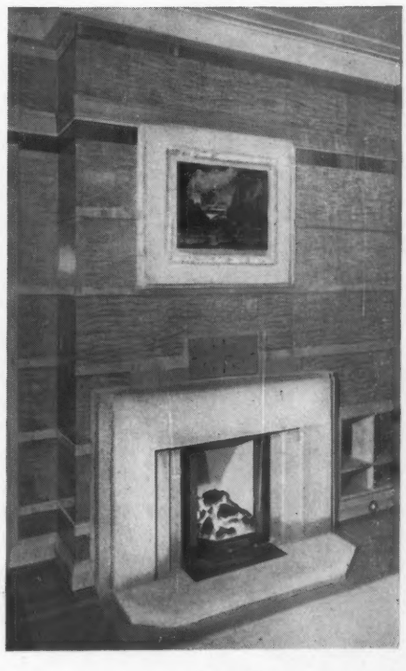
THE KING'S HOUSE, BURHILL, SURREY.

MR. C. BERESFORD MARSHALL, F.R.I.B.A. (Messrs Marshall and Tweedy), Architect.

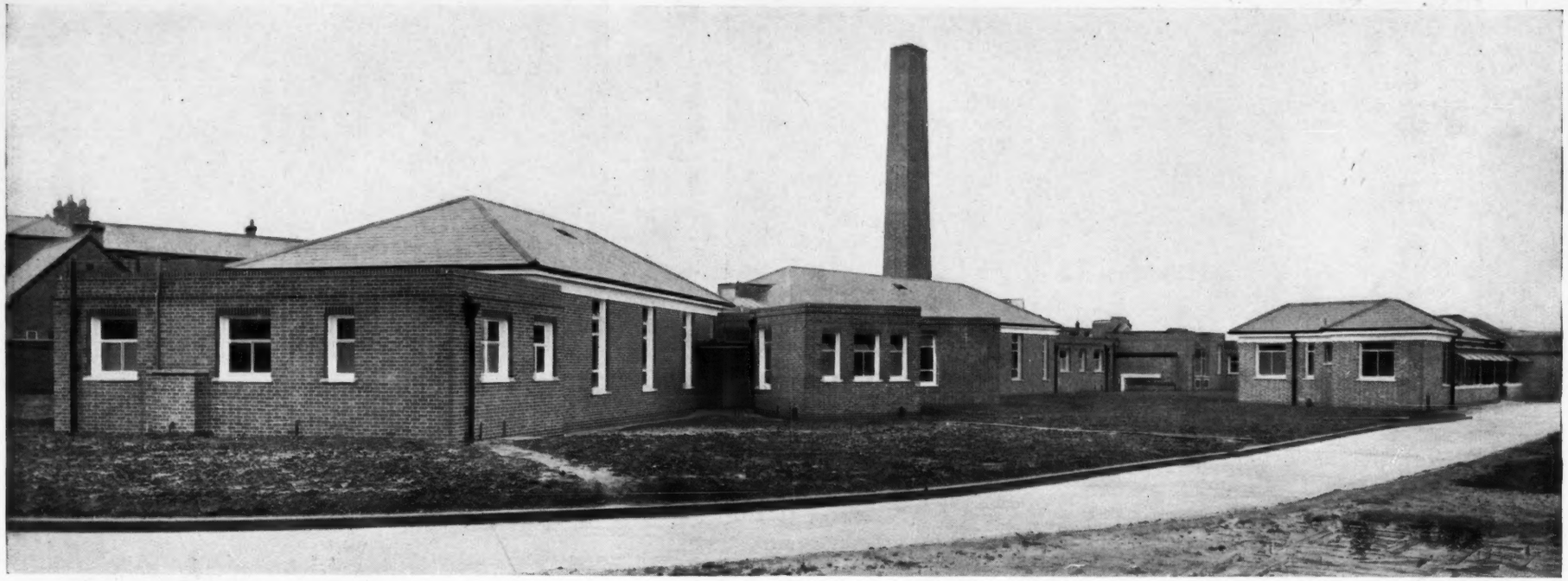
THE HALL AND STAIRCASE. LOOKING FROM INNER HALL.



THE DINING-ROOM.



FIREPLACE IN STUDY, WITH BRANGWYN PANEL OVER

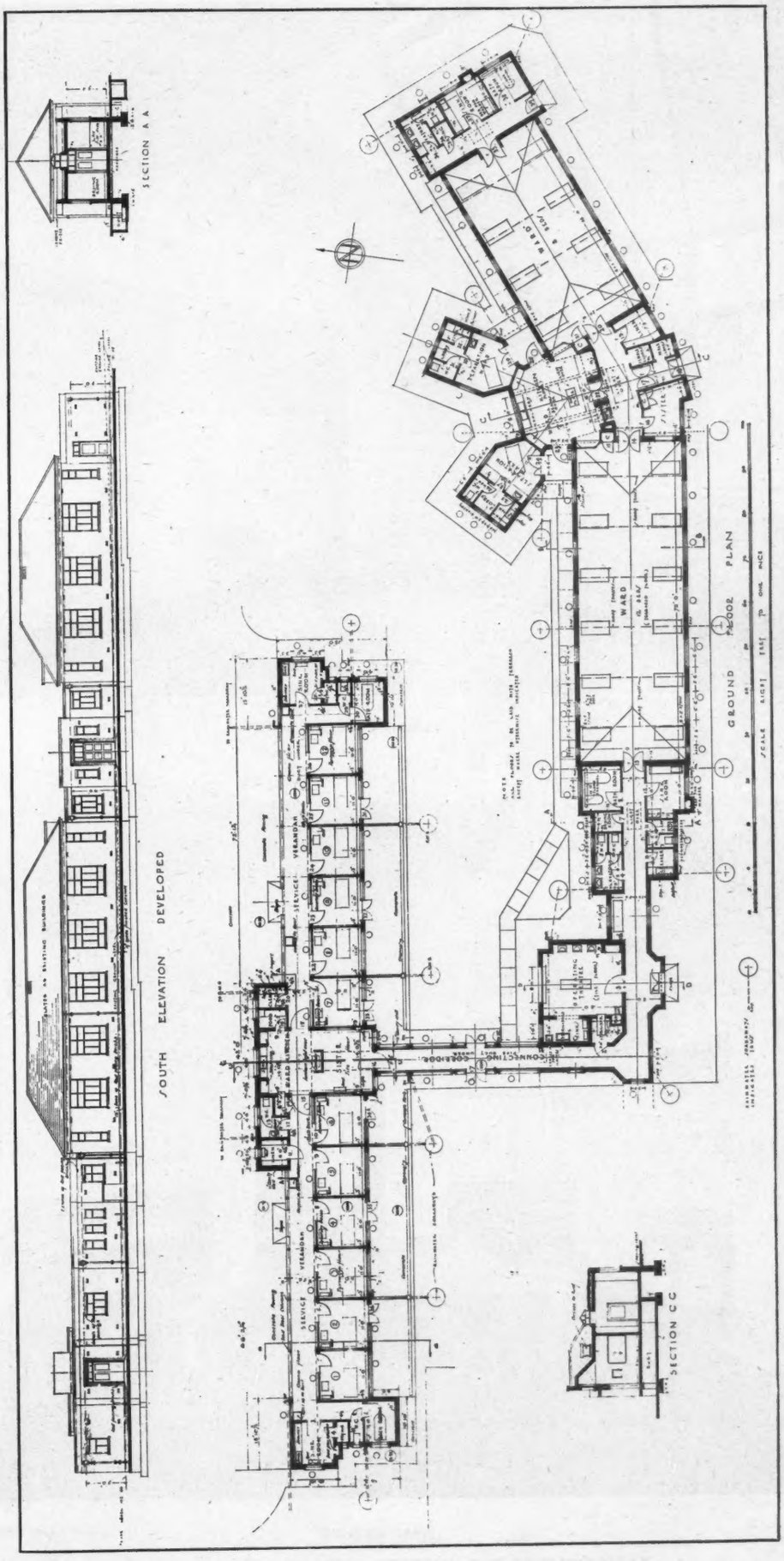


VIEW FROM NORTH-EAST.

VIEW FROM SOUTH-WEST.

EXTENSIONS TO THE WATFORD JOINT ISOLATION HOSPITAL.

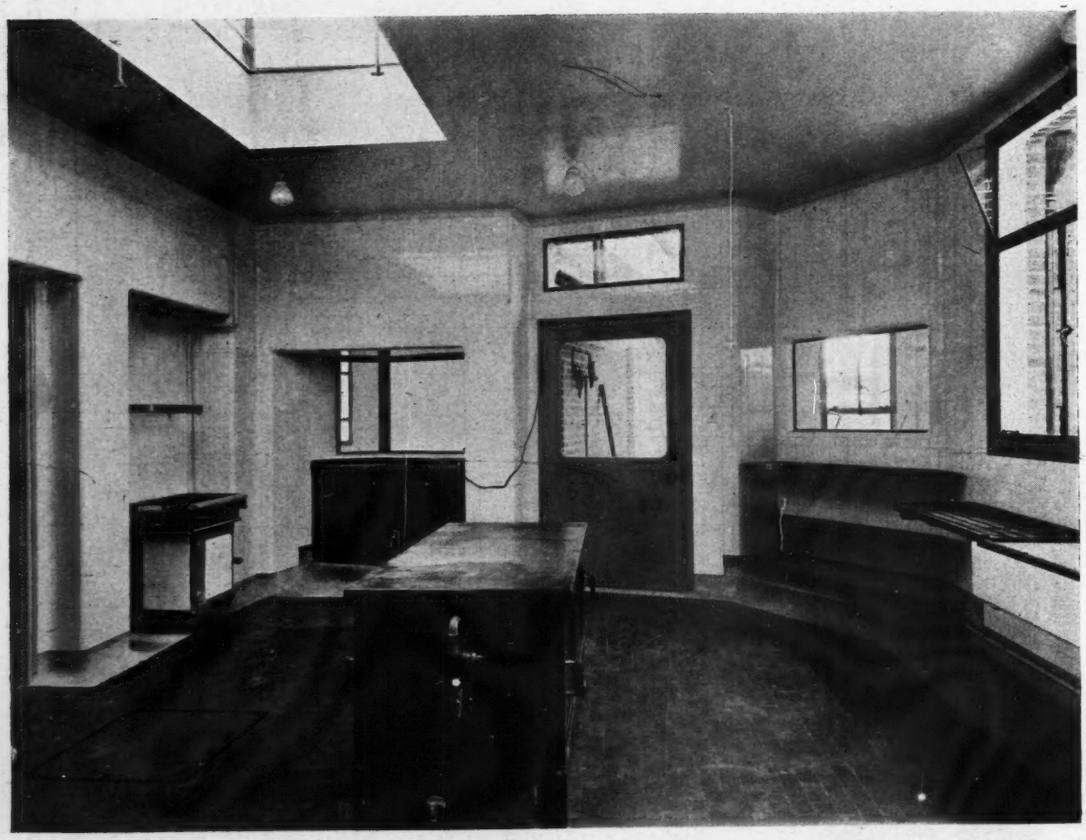
MR. W. H. HOBDAY, F.R.I.B.A., Architect.



EXTENSIONS TO THE WATFORD JOINT ISOLATION HOSPITAL.

MR. W. H. HOBDAY, F.R.I.B.A., Architect.

OPERATING THEATRE.



WARD KITCHEN.

EXTENSIONS TO THE WATFORD JOINT ISOLATION HOSPITAL.

MR. W. H. HOBDAY, F.R.I.B.A., Architect.

E.R.A. LABORATORY, PERIVALE.

Architect: Gerald Cogswell, A.R.I.B.A.

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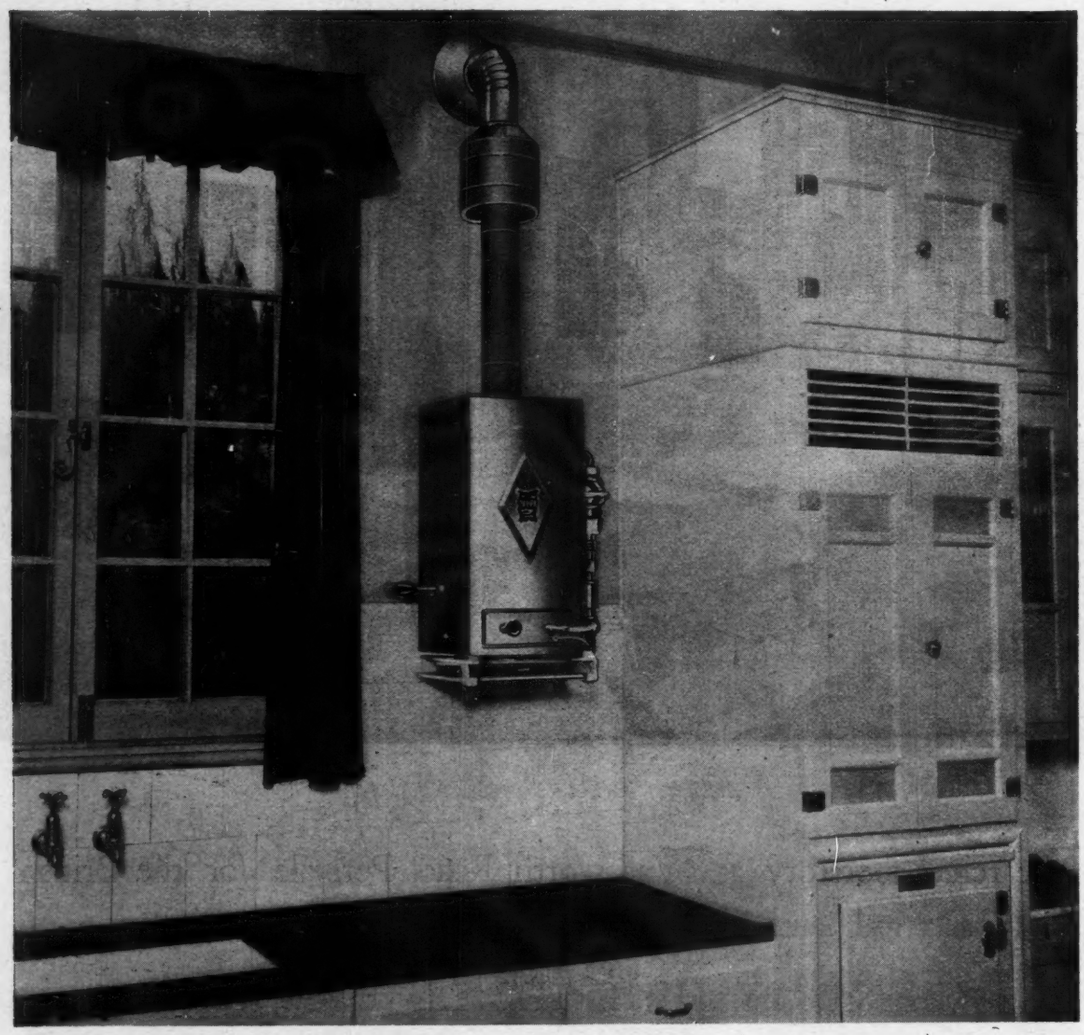

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ILLUSTRATIONS

PLATES

A Fantasy of the 16th Century—"Life and Art."

This is the title of the latest of the series of imaginative reconstructions of mediæval architecture, life and costume drawn specially for this journal by Professor A. E. Richardson, F.S.A., F.R.I.B.A.

"Gatton Park," Reigate, Surrey.

Gatton Park has, since 1889, been the seat of Sir Jeremiah Colman, Bart. It is a place of great antiquity, numbered amongst the historical beauty spots of Great Britain. Its naturally beautiful setting is enhanced by rock, rose, Japanese and old world gardens with flowers of glorious colours and an orchid house of great fame.

Early in 1934 occurred the disastrous fire which destroyed the whole of the fabric with the exception of the entrance portico. Sir Jeremiah and Lady Colman decided upon rebuilding, and instructed Sir Edwin Cooper, A.R.A., with whose work they had been familiar for many years, to design their new home, preserving the classic portico. In rebuilding, such of the old material as was not destroyed by fire has been reused. Mr. Lacey, builder, of Leatherhead, was entrusted with the general reconstruction work under the direct supervision of the architect. The stonework was carried out by Messrs. Damer Bros., Ltd., and the stone carving was done by Mr. George Haughton. The reworking and adapting of the old marble was executed by Messrs. Joseph Whitehead and Sons. The remodelling of the metal work was by Mr. William Smith. The three fine reception rooms facing the garden are panelled in walnut, cedar and oak, mainly from timber grown upon the estate; the craftsmanship was carried out by Messrs. John P. White and Sons, of Bedford, with excellent results. The quantity surveyor was Mr. George A. Webster, F.S.I.

Proposed New County Offices, Carmarthen.

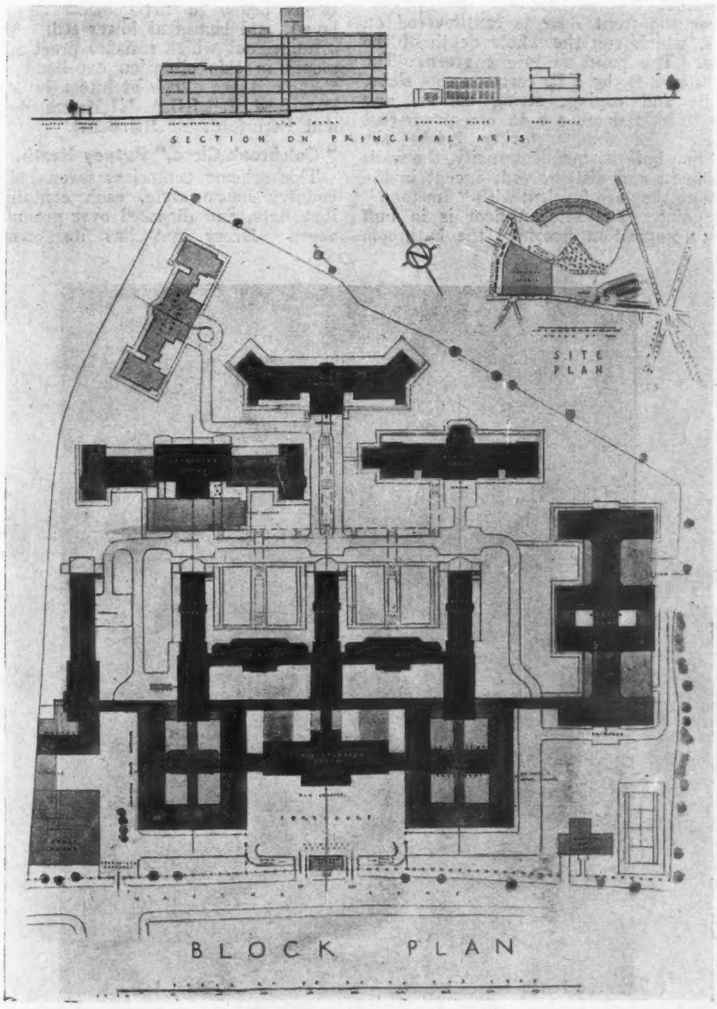
This scheme is only in the preliminary stages, application having been made to the Ministry for approval. The building will house all the departments of the County Council, and will include a large council chamber, which can also be used as a court room. The buildings are to be erected on the site of the existing gaol, which will be demolished to make room for the new building. The site is a fine one on an eminence overlooking the river. This situation and the character of the old town itself have been considered in preparing the design. It is proposed to construct the building with local rubble stone walling with Portland stone dressings and thick Welsh slates on the steep pitched roof.

Mr. Percy Thomas, O.B.E., P.R.I.B.A., is the architect.

New Medical Block, St. Bartholomew's Hospital.

The drawing published shows the front of the new Medical block, forming one side of the courtyard of the Hospital. The medical block is for 250 beds, and is attached to the surgical block and operation theatres, which were erected some years ago.

The problem in this case was to find an architectural treatment suitable to the needs of a modern hospital building, and at the same time one that would harmonise with the adjoining blocks, which were originally designed by Gibbs, and built some 200 years ago, though refaced at a later date. In order to mask as far as possible the additional height that was necessary for practical reasons in this block, the top story of the facade has been designed in lead, to give the impression of a roof rather than that of a wall, the main cornice being kept at the same level as in the case of the old buildings. The front is of Portland stone, and much of the old ashlar work has been reused in the new design.



ST. HELIER HOSPITAL, SURREY.

MESSRS. SAXON, SNELL AND PHILLIPS, FF.R.I.B.A., Architects.

"The Builder" District Surveyors' Map of London.

As an envelope will be found *The Builder* L.C.C. District Surveyors' Map of London—a biennial feature exclusive to this Journal, by courtesy of the L.C.C., giving the current list of district surveyors, their addresses and telephone numbers, and the areas over which they act.

Devonport Nurses' Home, Greenwich.

We give a view of the main entrance archway of the Nurses' Home of the Seamen's Hospital, Greenwich. The elevational treatment is in brick facings with stone dressings. The accommodation of the Home consists of visitors' room, sisters' sitting-room, nurses' sitting-room, probationers' sitting-room, writing room, two classrooms, a large reception room, cookery demonstration room, and the necessary kitchen and cloakrooms. The upper floors have nurses' bedrooms, each of which has a lavatory basin with hot and cold water, bathrooms, etc. Messrs. Foster and Dicksee, Ltd., are the general contractors.

Sir Edwin Cooper, A.R.A., is the architect

The Gardner Memorial Church, Cairo.

The church has been built by an Arab contractor under the supervision of Abdul Halim, A.R.C.A. The dome has been constructed with bricks. Sir Herbert Baker, R.A., F.R.I.B.A., is the architect.

Library, St. Hilda's College, Oxford.

This building, by Sir Edwin Cooper, A.R.A., comprises a new library for the College and additional students' bedrooms. The building is in multi-coloured bricks with tiled roofs and stone dressings, the bricks being of four-course to the foot up to the sills of the ground-floor windows and five course to the foot above.

Messrs. Foster and Dicksee, Ltd., of Rugby, are the contractors.

Proposed Government Buildings, Edinburgh.

We show a new perspective of the new Government buildings to be erected on the Calton Hill site. The façade of the building will be faced with natural stone. The south connecting wing has been made low in height to allow the sun's rays from the south to penetrate the central courtyard for lighting the rooms on the lower floors. This treatment not only provides the necessary light to the rooms, but is an essential feature of the architectural composition. The roof will be of low pitch and covered with copper to present a clean roof line when viewed from the top of the Calton Hill. The flat roofs used as terraces will be finished with asphalt and squared paving. The car parking space is entered from the west end of Regent roadway, and is at street level. The plans provide approximately 140,000 super feet of accommodation, as required by His Majesty's Office of Works, and are so contrived that the accommodation may be easily rearranged at a later date to suit administrative convenience. The main entrance is placed centrally, and will give access to the lifts serving the upper floors. Accommodation is provided for the following departments:—Scottish Office, Department of Health for Scotland, Department of Agriculture for Scotland, Fishery Board for Scotland,

THE NAMES OF SPECIALISTS.

Supplementary lists of specialists and subcontractors engaged on the buildings illustrated will be found on pages 216 and 217 (Advertisement Supplement).

Scottish Education Department, General Board of Control for Scotland. It is estimated that the cost of the building will be approximately £425,000.

Mr. Thomas S. Tait, F.R.I.B.A. (of Sir John Burnet, Tait and Lorne), is the architect.

The architects are Messrs. Lanchester and Lodge, FF.R.I.B.A.

"Pretious Field," Northiam, Sussex.

This is an extremely simple little house built in the village of Northiam. The plan has some especially interesting features. The large living-room has a raised dais as a dining-room end, which is level with the kitchen offices, and the cloakroom acts as an entrance lobby to the nursery. The house is built of cavity brick walls, rendered and finished in a pale Italian pink colour. The roof is covered in stone-coloured tiles. The architect is Mr. Edward Maufe, M.A., F.R.I.B.A.

St. Helier Hospital, Carshalton, Surrey.

This new hospital will be provided by the Surrey County Council to cope with the needs of the rapidly expanding mid-eastern portion of the county. The hospital will be erected on a site in Wrythe-lane, Carshalton, with permanent open spaces on three sides. The total accommodation will be 860 beds. The main blocks will contain general medical, surgical and special cases, and separate blocks are provided for maternity, children, chest, isolation and observation cases. Out-patients and casualty, X-ray, electrical and massage departments are included, the last three so placed that they are available both for in- and out-patients. The nurses' home will house 340 nursing staff, and there is a separate maids' home to accommodate 117 of the domestic staff. The main operating department is self-contained, on the third floor, and has three operating theatres, X-ray and plaster room, and the usual ancillary accommodation.

The architects are Messrs. Saxon Snell and Phillips, FF.R.I.B.A.

A Swimming Pool, Londonderry, Yorks.

This pool, at Newton House Hotel, Londonderry, Yorks, has a reinforced concrete basin 90 ft. long and 35 ft. wide, and advantage was taken of the very spacious grounds of the hotel to place the pool in the centre of an existing lawn, so that the changing-room building could be positioned under a very fine existing beech tree. The pool is cement-rendered on its inside faces and painted in green cellulose paint, and the surround of the pool is in a reconstructed stone paving. The pool is provided with a Penstock chamber and overflow and has a manilla rope positioned at the water's edge for support of swimmers. A spring-board is provided at one end, where the depth is 7 ft. The changing-room building has a covered veranda with an extended pergola at each end, on which climbing roses are being trained. The accommodation of the building provides a large open changing-room, as well as a cubicle room, for both sexes, with independent lavatory accommodation. Water is supplied to the pool from a private well, and the water is pumped into tanks and gravitated to the pool.

The architect is Mr. Edwin M. Lawson, A.R.I.B.A.

Swimming Pool, Boroughbridge, Yorks.

This pool is positioned in a corner of the extensive grounds of the "Three Arrows" Hotel, Boroughbridge. It is constructed in reinforced concrete, and the swimming area is 80 ft. by 32 ft. The pool has a wide surround of York stone paving beyond which are close-cut lawns for sunbathing, with decorative umbrellas sheltering tables, where tea can be taken. Interesting lamp standards in oak, with oak hanging lanterns, adorn the sides of the pool and an unusual footbridge in oak, designed by the architect, Mr. Edwin M. Lawson, A.R.I.B.A., spans the rill running through the grounds separating the pool from the rock gardens. A curtain wall in 2-in. hand-made bricks, and with splayed wing surmounted by stone coping and stone vases, and with a decorative garden seat painted cream, separates the woods from the deep end of the pool, and at one side, facing south, is the cubicle building, with ladies' and gentlemen's dressing accommodation and lavatory wings. This building is constructed in timber and roofed with Courtrai-du-Nord tiles of moss-green shade. Externally, the walls are covered in weatherboarding, painted cream, and an arched veranda spans the full length of the building, and is raised 2 ft. 6 in. above the level of the pool for the benefit of spectators. The pool is constantly fed by spring water from the grounds, passing to the pool through a spray, and the outlet is by a Penstock chamber. Internally, the pool walls and bottom have been treated with a green cement, sprayed on by a "gun," by the Cement Marketing Co., and at the deep end a diving board has been provided. The general contract was carried out by Messrs. Waddington and Son, Boroughbridge.

House at Enfield.

This house was erected to the designs of Messrs. Kenneth A. H. Bayes, A.R.I.B.A., and H. Lowdon Bishop, P.A.S.I., M.R.San.I., for a musician who particularly required a large living-room with a circular end for his grand piano. The plan is arranged so that the living-room can be thrown open to the hall by double doors for the holding of small private concerts. The curve of the living-room repeats the curve of the road, which occurs at that side of the site, and which is visible from the balcony of bedroom 1. The walls are in Williamson Cliff orange facings and Flettons 9 in. thick, the latter rendered externally with water-repellent cement and "Cullamix." The roof is Andersons' "Macasphalt" patent roofing. The projection over the front door is cantilevered on R.S.J.'s, which run the whole depth of the building. The paint is bright green. The paving is in 2 ft. by 1 ft. cast concrete slabs. The sills and coping, string course, and canopy to side doors are in cream pre-cast concrete. The orange facing bricks are pointed in a buff mortar. Internally, the walls are plastered and distempered, except in the hall, where they are finished with "Imstone" plastic paint. The kitchen floor is in buff jointless composition flooring; the bathroom floor is covered with tempered Presdwood flooring; otherwise the floors are pine tongued and grooved wood blocks on ground floor, and deal boards above. All ceilings are of insulating board with skim coat of plaster. Bathroom and kitchen are tiled to sill height. All woodwork, including the flush doors, is painted ivory, except the handrail, which is black. All door furniture is in anodised aluminium with level handles. Heating is by central heating with "Rayrads"; and there are standard metal windows.

House at Wendens Ambo, Essex.

This house is situated in that delightfully unspoilt corner of N.W. Essex, near Saffron Walden, where traditional methods of building still predominate. Built of brick, with slight overhangs in the upper story and gables, it is stuccoed over with various and irregular patterns indented, somewhat after the manner of old Essex pargetting, and the finish generally is in a simple, homely character. The study walls are completely lined with bookshelves and panelling. The external view is from a water-colour by Mr. Baillie Scott. The architect is Mr. Edgar Beresford, F.R.I.B.A. (Messrs. Baillie Scott and Beresford, FF.R.I.B.A.).

Proposed House at Cawsand, Cornwall.

The site of this house presented several unusual problems. There is a drop of 5 or 6 ft. at the road boundary to a level shelf varying from 9 to 20 ft. wide (which cannot be built on); then comes another 6 ft. vertical drop, and beyond, a slope of approximately 40 deg. The provision of a garage at road level was essential; and the main outlook had to be on the opposite side, where there is a magnificent view across Plymouth Sound. These conditions determined the "topsy-turvy" lay-out, with garage on roof, living rooms below (a little below the "shelf" level), and bedrooms lower still. This is an arrangement which satisfies practical requirements in this situation excellently, unusual though it is. The architect is Mr. Edgar Beresford, F.R.I.B.A. (of Messrs. Baillie Scott and Beresford, FF.R.I.B.A.).

"Colebrook Close," Putney Heath.

This scheme comprises seven buildings in country house style, each containing only four flats, and disposed over grounds of two acres. Every flat has its own private

A HOUSE AT ENFIELD: The Hall, looking into Dining Room.
MESSRS. BAYES AND BISHOP, A.R.I.B.A., P.A.S.I., Architects.

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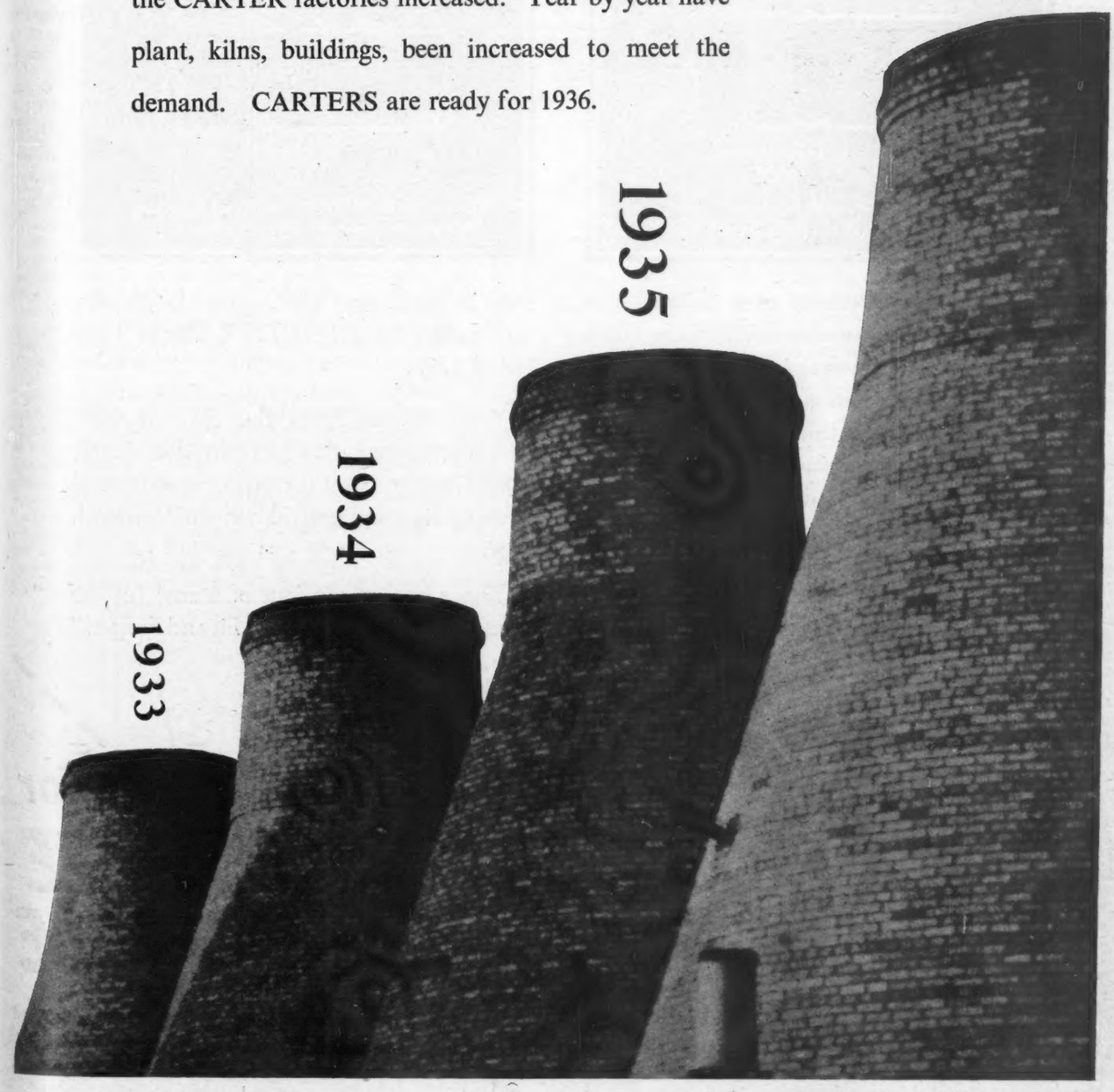

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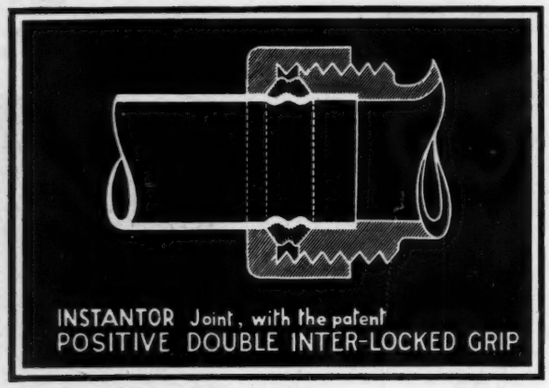
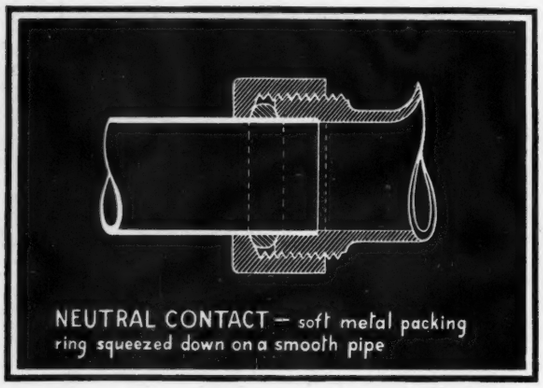


INSTANTOR Joint, with the patent POSITIVE DOUBLE INTER-LOCKED GRIP



NEUTRAL CONTACT — soft metal packing ring squeezed down on a smooth pipe

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Signed.....

"B" JAN 10/M.R.

entrance. The buildings are of fireproof construction, finished in a pleasing texture of ivory white, around a well laid-out garden with private entrance drive. The roofs are covered with Langley's green and brown glazed "interlocking" pantiles set at a low pitch over the walls, and forming a pleasing complement to the surrounding countryside. Every flat has French doors opening on to a 20-ft. veranda with built-in flower-boxes overlooking the gardens. Constant hot water and central heating installation on the estate supplies each flat. In addition to radiators, sitting-rooms have coal fireplaces. Provision is also made for gas or electric heating. The principal bedrooms have built-in electric fires. Special attention has been paid to the planning and equipment of the kitchens and bathrooms, each flat having two of the latter. Principal bedrooms have built-in wardrobes. Floors are of polished oak except in kitchens, bathrooms and w.c.s where there are rubber floors. Each flat is wired with built-in aerial and earth for radio.

The architects are Messrs. Marshall and Tweedy, FF.R.I.B.A.

"Dorset House," Marylebone-road, W.

This building occupies an island site at the corner of Upper Gloucester-place and Marylebone-road. The basement and lower ground floor accommodate a proprietary garage, while a petrol service station and entrances to the garage are at ground level. The remainder of the ground floor is occupied with the main entrance to the flats, there being also a large lounge entrance; service entrances; a large area for restaurant and café; 16 shops with basements; and a refuse disposal compartment. Above ground floor there are 9 floors of flats. On each of the first eight floors there are 21 flats, varying in accommodation from 1 living room, 1 bedroom, kitchen and bathroom, to 2 living rooms, 4 bedrooms, kitchen and 2 bathrooms. The flats on the eighth of these floors have private roof gardens, as have the 17 flats on the ninth floor. Rentals vary between £165 and £325.

All flats are excellently equipped. Living-room fireplaces are fitted for coal, gas and electricity. In other rooms there is a choice of one of these methods. Central heating is by the Crittall "Panel" systems. Hot water, passenger lift and service lift serve every flat. Kitchens are tiled, and have "Savestane" metal sinks and "Electrolux" refrigerators, while cooking may be by either gas or electricity. Bathrooms are tiled and contain a bath with hand-shower attachment, a pedestal basin and heated towel rail. Each flat has an electric clock and a screened aerial amplification to a plug point.

The architects are Messrs. T. P. Bennett, F.R.I.B.A., and Son, while Mr. Eric Gill executed the stone carving. Messrs. Gee, Walker and Slater, Ltd., are the general contractors.

Flats, No. 88, Portland-place, W.

The building is erected upon the site af two houses on the east side of Portland-place, part of the Howard de Walden Estate. Construction is steel frame with cavity walls. Floors and roofs are of hollow tile. The inner leaf of external walls are of 2½-in. clinker blocks and the external partitions are of similar blocks. The front to Portland-place is in Portland stone. Windows are of the steel casement type. The scheme contains 41 flats. There are four flats on each floor, grouped round one central staircase, with two automatic passenger lifts serving all floors. The two front flats and the two back flats on the first to the seventh floor are planned in such a manner as to make it possible for them to be altered into one large flat should there be a demand. This has, in fact, been done on two floors. The building is heated on the low-pressure accelerator hot-water system. The domestic hot-water supply installation is designed on the "Gravity" system. The entrance hall is paved in marble with the walls painted. Doors and surrounds are in teak and walnut. The upper landings and staircases are finished in heavy density cork. The lift cars are lined with hide.

The architects are Messrs. Trehearne and Norman, Preston and Co. The main contractors are Messrs. Harry Neal, Ltd.

"Portland Gate," Hove.

This block of flats, known as "Portland Gate," now being erected to the designs of Mr. Joseph Hill, F.R.I.B.A., is designed to provide the public with well-planned accommodation with every facility at rentals ranging from £75 to £100 per annum. The building has a northerly aspect, with a frontage of 188 ft. on Portland-road, and a depth of 70 ft. As will be seen from the architect's perspective, the building is E-shaped on plan, thus providing two forecourts with separate entrance and exit drives, the dividing islands being planted with shrubs. The building, consisting of five stories, will be of reinforced concrete throughout, with the caretaker's quarters forming an additional story above the main roof level. Each floor will comprise ten flats skilfully designed to give the maximum convenience in the arrangement and orientation of rooms and with passageways reduced to a minimum. The average size for the living-rooms is to be 12 ft. 6 in. by 15 ft., and each flat will have a cantilevered balcony separated from the living-room by French casements. The outer walls have a constructional thickness of 5 in. with a patent stone finish externally, and an insulation of 1 in. cork and ½ in. plaster on the inside. It was, in this case, desirable to reduce the weight of the building to a minimum, and to this end the walls which separate the flats are constructed of two 4-in. Moler hollow-block partitions with a 1-in. "thatchboard" lining between, the total weight of which is under 25 lb. per super ft. The same type of wall is to surround the staircases and lift shafts, not only to reduce dead weight, but because the sound and thermal insulation is approximately equal to that of an 18-in. brick wall. As shown in the perspective, the fenestration is an important feature in the design and the maximum amount of light and air is admitted to the building by the angular windows. Particular notice may also be taken of the continuous glazing for the staircases. The building is to be equipped with five electric lifts, each lift serving two flats on each floor. Rubbish will be disposed of through concealed and continuous refuse pipes with an airtight inlet hopper at each floor; these pipes discharge into large removable containers in the basement areas.

The structural work has been designed by Messrs. L. G. Mouchel and Partners, Ltd., to the standard laid down in the Code of Practice for High-Grade Concrete. The building is due for completion in April next, and the contractor, Mr. H. Meckhonik, 43, Upper Berkeley-street, W.1, is carrying out the work efficiently and to the satisfaction of the architect.

Design for Children's Hospital.

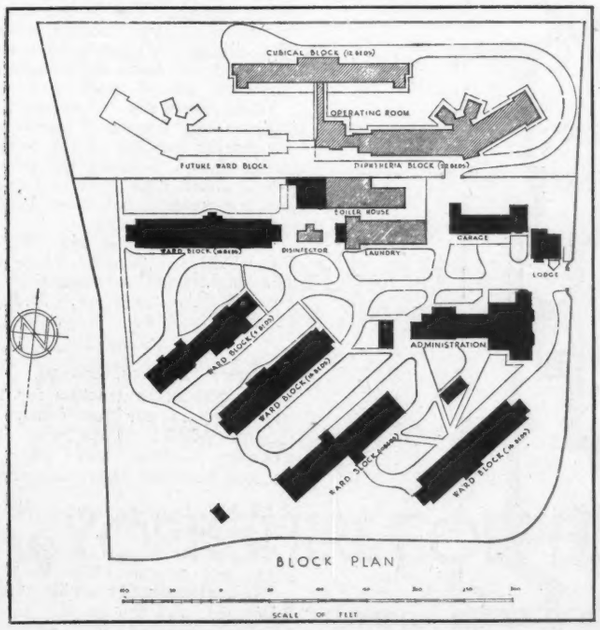
This design for a children's hospital has been prepared by Mr. Oliver Hill, F.R.I.B.A., and the model has been made by Mr. Kenneth McCutcheon. The south elevation has continuous balconies with sliding glass windows to wards. On the north side are placed the administration offices, kitchens, X-ray rooms and operating theatre and laboratories.

A Sports Pavilion and Grand Stand, Osterley.

The U.C.S. Old Boys' Club Sports Pavilion, built at Osterley to the designs of Messrs. Brian L. Sutcliffe, F.R.I.B.A., and H. Colin Farmer, A.R.I.B.A., shows an intelligent use of the possibilities of reinforced concrete. The building is constructed entirely in this material, and was erected by the Demolition and Construction Co., Ltd., in conjunction with their associated company, P.C.S., Ltd. The structural engineering design was carried out by Messrs. Johnsons Reinforced Concrete Engineering Co., Ltd., and their reinforcements and "lattice wire" was used throughout. From the outside the most striking feature is the grand stand and the ramps carrying the roof. The roof is comprised of five cantilevers having a maximum depth of 8 ft. and a minimum of 1 ft., pivoted about a main reinforced concrete girder which spans the pavilion from end to end. The depth is approximately 20 ft. and the beam forms the main wall dividing the stand itself from the club-rooms and the caretaker's premises. The upper part of the superstructure is supported on this beam, while below it clear space is given for planning and development.

The roof to the stand and first-floor rooms is covered with corrugated asbestos sheets laid across the concrete beams and cross ribs, while over the baths and changing-rooms is a large "Macflex" flat roof (access to which is through the club-room), which forms a very pleasant stand and open-air lounge for the summer months. The advantages of the cantilever roof to the grand stand are immediately apparent, and as no front supports are needed a clear and unobstructed view of the whole field is open to every spectator.

The whole of the outside is treated with two coats of Messrs. Joseph Freeman, Sons and Co.'s Ltd., Cementone No. 9 waterproof stone-



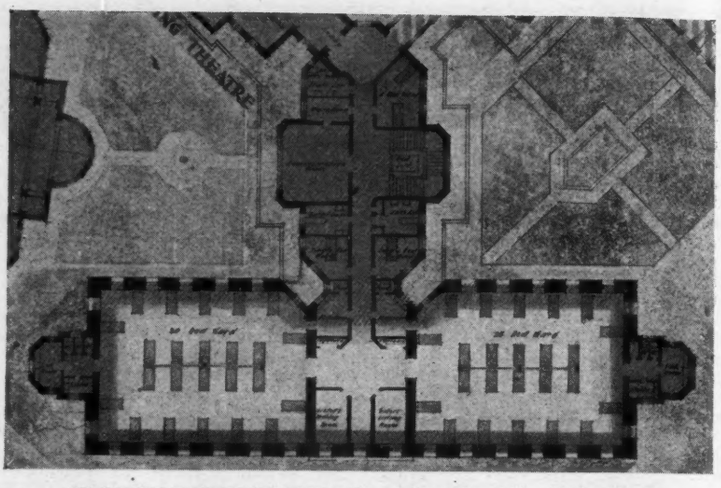
EXTENSIONS TO WATFORD JOINT ISOLATION HOSPITAL.
Mr. W. H. HOBDAY, F.R.I.B.A., Architect.

face composition, applied direct to the concrete and stippled, with very happy effect.

The interior partitions are of "Pioneer" blocks set with "Pioneer" plaster, and in the bathrooms, w.c.s and changing-rooms cream distemper has been put straight on the blocks with very satisfactory results.

Next to the well-equipped kitchen is a large dining and tea-room with a window along one side, looking on to the sports ground. There is a large brick open fireplace, and open fires are provided also in the bar, club-room, groundsman's living-room (in addition to these fires all rooms have hot water and central heating). The tea-room has an unpolished mahogany dado, oak doors and a polished hardwood floor, as has also the bar. In the club-room is a maple block floor, and in the changing-rooms the floors are birch. All of these floors are pleasant to use and hard wearing. There is a large changing-room for members, four smaller ones for visitors and a ladies' dressing-room. The changing-rooms have a dado of dark brown "Masonite" above the wooden seats fixed round the walls, and this dado protects the light walls from becoming dirtied or scratched.

For those who play games the first consideration will be the baths, and here they are well provided for. Along one tiled wall are hot and cold showers; along the side walls are ranges of basins and a drinking fountain; and in the centre of the room are six large concrete plunge baths with terrazzo floors. The economical and rapid provision of sufficient hot water needed careful arranging and the solution deserves mentioning. It will be noticed incidentally that the boiler-house is right in the middle of the building, and is lit and ventilated from the flat roof. The chief difficulty presented to the heating engineers, the Freeman Heating Co., Ltd., by the six large plunge baths was that of hot-water storage. Space was too valuable to be filled by large hot-water storage tanks and economy of fuel had also to be considered. Therefore a steam boiler was installed with a main connection conveying live steam direct to each of the plunges, the steam being forced straight into the cold water contained in the baths, through patent ejectors. Each of these plunges could be valved off and used independently according to the number of players requiring baths. A further main connection was run from the boiler to a lagged steam calorifier for the six showers and other draws-off, the total storage for this purpose being approximately 400 gallons. The radiators and coils which heat the tea-room, bar and changing-rooms are heated from a small coke boiler, and by using an accelerator it has been possible to use small bore pipes, thereby saving trenching and other builders' work.



ST. BARTHOLOMEW'S HOSPITAL: Ground-floor Plan of New Medical Block.

The King's House, Burhill, Surrey.

The house, which is being presented to H.M. the King by the Royal Warrant Holders' Association, is now approaching completion. The site is at Burhill, Surrey, overlooking the golf course. We therefore give views of the replica which was erected for last year's Ideal Home Exhibition, and supplement them with a detail of an original etching by Mr. Frank Brangwyn, R.A., which will be placed over the fireplace in the study.

Mr. C. Beresford Marshall, F.R.I.B.A., is the architect, and the builders are Messrs. John Mowlem and Co., Ltd.

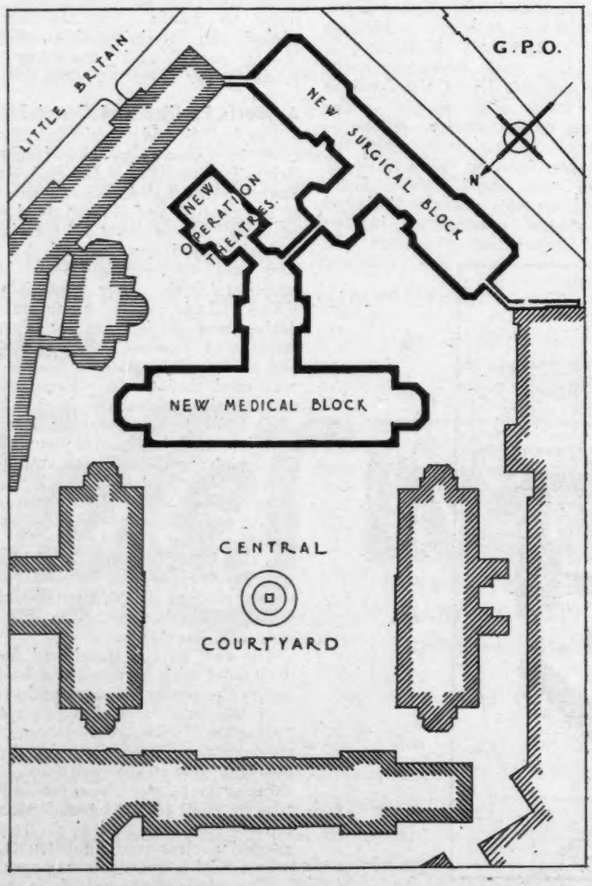
The Watford Joint Isolation Hospital.

The scheme of extension, as executed, provides for an additional 34 beds, which, with the present accommodation of 66 beds, gives a total of 100 beds, 22 new beds being in a diphtheria block and 12 in a cubicle block. The site was somewhat restricted, but the lay-out has proved satisfactory. Included in the scheme is a new operating-room intended primarily for tracheotomy, but so placed as to be accessible to any of the existing blocks in case of emergency. The diphtheria block is planned generally on the usual lines with central ward kitchen giving direct supervision over the two large wards and also the two observation wards. Sanitary offices are placed at either end of the block. In the cubicle block each cubicle contains a lavatory basin and each alternate cubicle has wide doors on the south side opening on to a paved terrace. The scheme also included a new boiler-house, coal store and disinfector house and the remodelling of the old laundry.

Externally the new buildings are faced with London stocks with red dressings, the roofs being slated. The large wards are steel-framed with 11-in. hollow walls and hollow tile ceilings. All wards have terrazzo floors, the floors of corridors being of granolithic. Windows are of steel with wood frames.

Walls, internally, where not tiled, and ceilings are of "Pioneer" plaster painted. The engineering services of the hospital were remodelled and included the provision of two new dryback high-pressure steam boilers and one low-pressure hot-water boiler to supplement the two existing.

The architect was Mr. W. H. Hobday, F.R.I.B.A., of Messrs. Paine and Hobday. The engineering services were designed by Mr. H. A. Sandford, M.A., Consulting Engineer.



ST. BARTHOLOMEW'S HOSPITAL: Block Plan showing New Extension.
MESSRS. LANCHESTER AND LODGE, FF.R.I.B.A., Architects.

Coventry Technical College.

The general contractors for this building, illustrated in our last issue, were Messrs. Garlicks, Ltd., of 42, Far Gosford-street, Coventry. This fact was inadvertently omitted from our description of the College.

R.I.B.A. Examinations, November and December, 1935.

The questions set at the Intermediate, Final and Special Final Examinations held in November and December, 1935, have been published, and are on sale at the R.I.B.A., 66, Portland-place, W.1, price 1s. (exclusive of postage).

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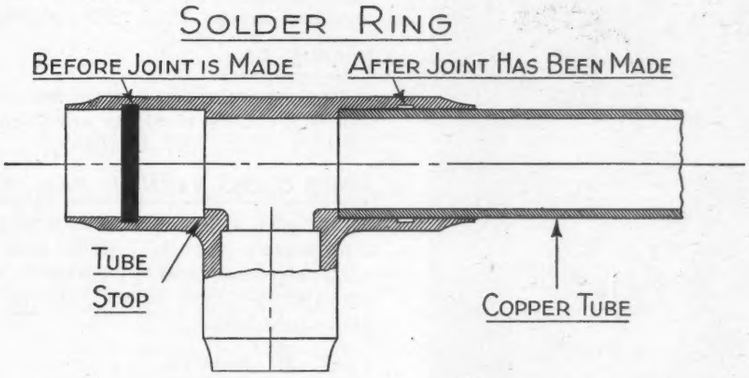

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GENERAL NEWS

Professional Announcements.

Mr. Frank N. Falkner, O.B.E., F.S.I., F.I.Arb., Chartered Quantity Surveyor, has moved from 14, Princes-street, Cavendish-square, to 46, Berners-street, W.1. Telephone: Museum 2527/8.

Messrs. Gardiner & Theobald, chartered quantity surveyors, of 96, Gower-street, London, W.C.1, have taken into partnership Mr. Gordon Lionel Coates, P.A.S.I. The title of the firm will remain unchanged.

An Architect's Estate.

Mr. Roland Wilmot Paul, of Canynge-square, Clifton, Bristol, the architect who was responsible for the restoration of Abbey Dore, Hereford, left £16,597, with net personalty £15,203.

The late Joseph Pilling, F.R.I.B.A.

The death is announced of Mr. Joseph Pilling, F.R.I.B.A., who was formerly in practice as an architect in Bolton. Having served his articles he became a partner in the local firm of Messrs. Cunliffe and Pilling, Mawdsley-street, and in that capacity was professionally associated with the erection of many buildings in the town, notably the Fire Station in Marsden-road, the out-patients' and casualty department at the Infirmary, and a number of cotton mills. He was 87.

Appointments.

Mr. W. Mollison, F.R.I.B.A., head of the Natal Provincial Works Department at Maritzburg, has been appointed Chief Architect for the Union, and will take up his new duties in Pretoria in February next.

Birmingham Education Committee have appointed as principal of the Aston Technical College Mr. David Dudgeon Stockley, B.Sc., Eng. (Lond.), A.M.I.M.E., late head of the Department of Mechanical and Structural Engineering and Building at the Borough Polytechnic, London. The appointment will date from May next.

R.I.B.A. at "Schoolboys' Own Exhibition."

The Schoolboys' Exhibition at the Imperial Institute, South Kensington, opened on Wednesday last week, and continues open until January 11. It is of particular interest to architects this year, for there is, for the first time in the history of the exhibition, an architectural exhibit. This has been organised by the R.I.B.A. Junior Members' Committee. A competition is being held in connection with the exhibit, and over sixty book-token prizes, of values from 3s. 6d. to £1, are being awarded. It is a competition which is open to the sons and daughters of all members of the profession, as well as of the public generally. Entrance forms are available on the exhibit. The Architectural Association and the Building Centre have collaborated with the R.I.B.A. in running this competition. The exhibit deals with the work of the architect in relation to the designing of a house. Starting from a drawing board, visitors see how the house is planned.

The Replanning of London.

The L.C.C. Town Planning Regulations Committee have prepared a policy for the replanning of London. It is proposed to divide the county of London into zones, in which buildings of a certain height will be allowed. In the outer suburban zone it is proposed that new buildings shall not be higher than the width of the adjacent road. There will be an inner zone, including parts of Paddington, Kensington, Fulham, Lambeth, Camberwell, Islington, and Hampstead, in which buildings 50 per cent. higher than the width of the adjacent road may be permitted, while in the central boroughs, like Finsbury, Holborn, Westminster, and Stepney, ever higher buildings in the proportion of two to one, or double the width of the adjacent road, may be permissible. It is understood that the boundaries of the zones will not coincide with the boundaries of the boroughs. At the same time the committee has been considering the future width of roads in Central London. Suggestions are being made of streets 200 ft. wide in the City and in Westminster.

COMPETITION NEWS

Public Baths and Pool, Coatbridge.

The award of the assessor, Mr. W. B. Whitie, F.R.I.B.A., in the competition restricted to architects in Scotland for proposed public baths, swimming pool, health offices, and minor ailments clinic, to be erected on the site of the Old Caledonian Tube Works, Main-street, is as follows:—

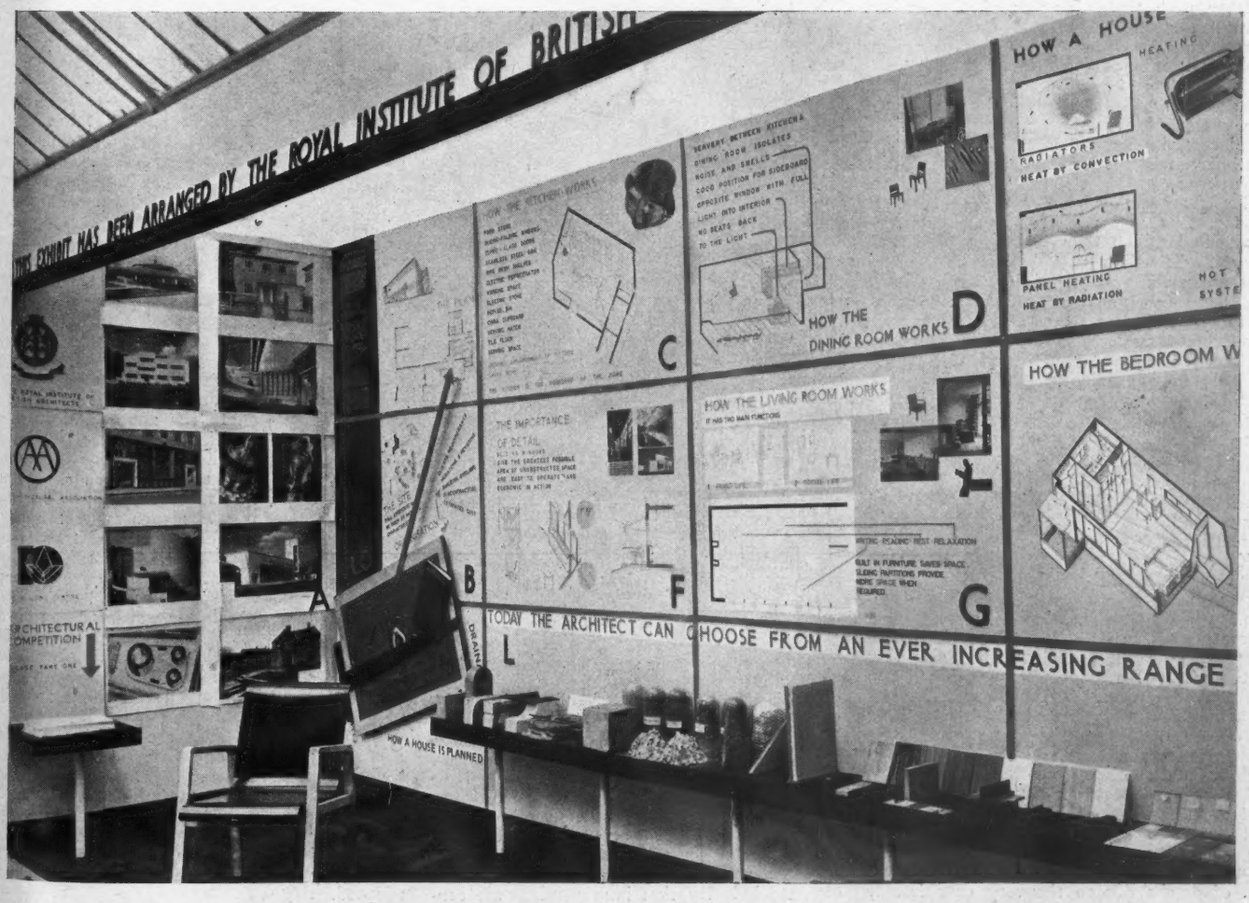
1st (£250): Messrs. James Davidson and Son, L.R.I.B.A., 6, Academy-street, Coatbridge.

2nd (£150): Messrs. Walker, Hardy and Smith, AA.R.I.B.A., 108, Douglas-street, Glasgow.

3rd (£75): Mr. James Miller, R.S.A., F.R.I.B.A., 15, Blythswood-square, Glasgow.

CURRENT COMPETITIONS.

	Particulars published in "Builder."	Sending in date.
New Council offices, for Harrow U.D.C. Messrs. C. H. James & Rowland Pierce, assessors. Premiums of £350, £250 and £150. Conditions from Mr. V. Younger, Clerk, Stanmore, Middlesex. Dep. £2 2s.	Oct. 11 Oct. 18	1936. Jan. 24
New Parliament Buildings, Salisbury, for S. Rhodesian Government. Mr. James R. Adamson, F.R.I.B.A., assessor. Premiums: £500, £300, £200 and £100 are offered. Conditions (dep. £2 2s.) from High Commissioner, Crown House, Aldwych, W.C.2. Designs to assessor (Bolton, England)	Aug. 2	Jan. 31
Civic buildings, for Southport B.C. Mr. E. Vincent Harris, assessor. Conditions from Mr. R. Edgar Perrins, Clerk, Town Hall	Dec. 6	Feb. 29
Public hall, Harpenden, for U.D.C. Mr. R. Lowry, F.R.I.B.A., assessor. Premiums: £100, £75 and £50. Conditions from Clerk, Harpenden Hall, on £1 1s. deposit	Nov. 29	Mar. 1
General Hospital, for Glamorgan C.C. Mr. E. Stanley Hall, F.R.I.B.A., assessor. No conditions yet available	Dec. 13	—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HOW THE LIVING ROOM WORKS
HOW THE BEDROOM W
THE IMPORTANCE OF DETAIL
ARCHITECTURAL COMPETITION
HOW A HOUSE IS PLANNED
TODAY THE ARCHITECT CAN CHOOSE FROM AN EVER INCREASING RANGE

R.I.B.A. SECTION AT "SCHOOLBOYS' OWN EXHIBITION," IMPERIAL INSTITUTE, SOUTH KENSINGTON.

THE USE OF REINFORCED CONCRETE TO-DAY

By W. L. SCOTT, M.Inst.C.E.

An eminent authority on building has recently suggested that, although it is almost a cliché to talk in England of revolutions occurring quietly in our midst, if ever the phrase was justified it surely applies to the changes induced in building by the development during the last 40 years of reinforced concrete. The revolution is wider than the use of reinforced concrete alone; we have to link with it the rapid developments in methods of heating, lighting, air-conditioning, surface coverings, finishes, and the like—in fact, all the numerous specialist branches which co-operate in the complex organisation required for building production to-day.

It is, however, the structural framework of the building and the foundations on which it rests that are responsible for maintaining its stability, and into this framework all other services and structural elements have to be fitted. The development of reinforced concrete followed naturally from the production of a Portland cement of adequate strength, and without modern Portland cements there would be no reinforced concrete as we know it to-day. Portland cement of reasonable quality was first produced in this country about 80 years ago, and it is barely 70 years ago that Monier, a French market gardener, took out the first patent for reinforced concrete and exploited it as "Monierbau" in Germany. Following Continental investigations at the end of last century by such pioneers as Coignet, Considère and Hennebique, who were responsible for the formation of the fundamental laws of behaviour and design of reinforced concrete, we have experienced an ever-growing field of application for the material.

Like many new materials, reinforced concrete was first used without discretion, and in many cases where it was uneconomical and for purposes for which it was quite unsuited. The effect of this misapplication, together with that of many of the earlier patent "systems" of mushroom growth and almost equally rapid decease, provided a handicap that might well have proved fatal to the adoption of a less remarkable material. The success of reinforced concrete as a structural material may be attributed to its low initial cost, its general adaptability, and its durability without continuous maintenance and upkeep costs.

The low initial costs are in part due to the fact that raw materials can usually be obtained locally, thus reducing transport charges. The fact that both concrete and steel are usefully employed in carrying load, and at the same time may perform other useful functions, is also contributory to low cost. A reinforced concrete wall, for example, in addition to being a most efficient load-carrying member, may provide protection from the weather, serve as sound and heat insulation, or, in tanks and basements, provide protection against the passage of water.

Its adaptability is indisputable, for it can be cast into any desired form and is not restricted by standardisation. Successful uses range from small pre-cast products, such as fence posts, to arched roofs of upwards of 150 ft. span and a few inches thick. It is not commonly realised that reinforced concrete is one of the safest means of construction. Should any portion of a reinforced concrete structure be grossly overstressed, even to the point of failure, the plasticity of the material ensures transfer of loads to less highly stressed portions, and, in any case, ample warning is given by the spalling off of the concrete cover, as may be witnessed at any test where the specimen is loaded to destruction.

Again, good concrete provides a perfect protection for the steel from corrosion, and in those early cases where through ignorance the concrete was badly made, warning has been given at an early stage by the formation of cracks due to the very considerable increase in volume due to corrosive action. In these cases repair has been possible before damage affecting structural stability has occurred.

Since the introduction of Portland cement concrete there has been a continuous improvement in its strength, an indication of which may be given by the following example. In the early days of its use, about 2,000 lb. per square inch was regarded as a high crushing strength to specify for structural work, whereas to-day concretes crushing at over 5,000 lb. per square inch are being used on various jobs all over the country, and are a commonplace. Actually some concrete has recently been made that crushed at more than 13,000 lb. per square inch. This concrete was admittedly for a particular purpose, but no special ingredients were used, its remarkable strength being obtained by careful proportioning of the aggregates, cement and water. Credit for vast improvement in the strength of concrete must be given first to the manufacturers of cement, particularly those in Great Britain. In fact, no better, if as good, cement is obtainable anywhere else in the world.

In addition, reinforced concrete has been aided by the many improvements in plant, methods of construction, and the greater experience of contractors and their personnel. Also the valuable help rendered by the Building Research Station must not be forgotten; as a result of its work we have a better understanding of the technique of making concrete and of the fundamental laws governing quality. Investigations into the behaviour of concrete under particular conditions of stress, heat, moisture, etc., have also been made, and these demanded a very high degree of technical ability on the part of the research engineers, and as a result of their studies this country now ranks high amongst those which lead the way in the use of reinforced concrete.

It must not be thought that the improvement of reinforced concrete as a structural material is anything like so great as the improvement in concrete itselt, since the other constituent material—namely, steel reinforcement—has not changed appreciably, although special steels are now appearing on the market for which safe stresses greatly in excess of those normally used are claimed for certain cases. Within practical limits all steel when subjected to tension stretches the same amount, and it is this stretch, or elastic strain, that really fixes its usefulness as concrete reinforcement. In other words, the maximum stress that can safely be imposed on steel reinforcement depends finally on the amount the reinforcement can stretch elastically before the concrete surrounding it becomes damaged.

The existing regulations, which were issued by the London County Council in 1915, give certain stresses which were thought to be reasonable and safe at that time, and it may be of interest to compare these with the corresponding stresses recommended in the new Code of Practice for Reinforced Concrete produced in 1933 :

Authority.	Concrete compression. Per sq. in.	Steel tension. Per sq. in.
L.C.C. 1915	600 lb.	16,000 lb.
Code 1933	950 lb.	18,000 lb.

In relation to the figures for crushing strengths already quoted, it will be seen that the recommended increase is conservative in the case of concrete, while for the steel reinforcement the increase is merely that found by experience to be satisfactory without there being any accompanying improvement in the metal itself. Many other changes recommended in the new Code will assist in bringing the regulated design of reinforced concrete more into line with present-day conditions. In fact, many important structures have already been designed in accordance with the new Code recommendations in places where the restrictive older regulations are neither in force nor imposed.

It is a very healthy sign in the reinforced concrete industry that improvements are continually being made in all directions. Methods governing precisely the quantity of water used for mixing the concrete, and more efficient methods of transporting and consolidating it, are having and will continue to have increasingly beneficial results. The amount of water used in mixing concrete is a factor of the greatest importance, since the strength of the resultant concrete is adversely affected by the use of more than the quantity necessary for the purpose of hydrating the cement. Actually, the quantity of water required for this purpose is very much less than is ordinarily necessary to produce the requisite degree of workability, which must be obtained to ensure adequate consolidation of the concrete in the moulds and around the steel reinforcement. Methods of pumping concrete through a tube under pressure require much less water than other means of conveying concrete through chutes or pipes, and if the subsequent deposition of the concrete is aided by vibration it is possible to use a concrete that is relatively very dry and consequently more consistently strong.

In the case of shuttering, new materials are being used for the surfaces, which assist in eliminating surface imperfections. Again, in certain classes of work moving shutters are used, these making for economy, because less shuttering is required, and concreting can be carried on continuously since the shutters are gradually lifted as the work proceeds.

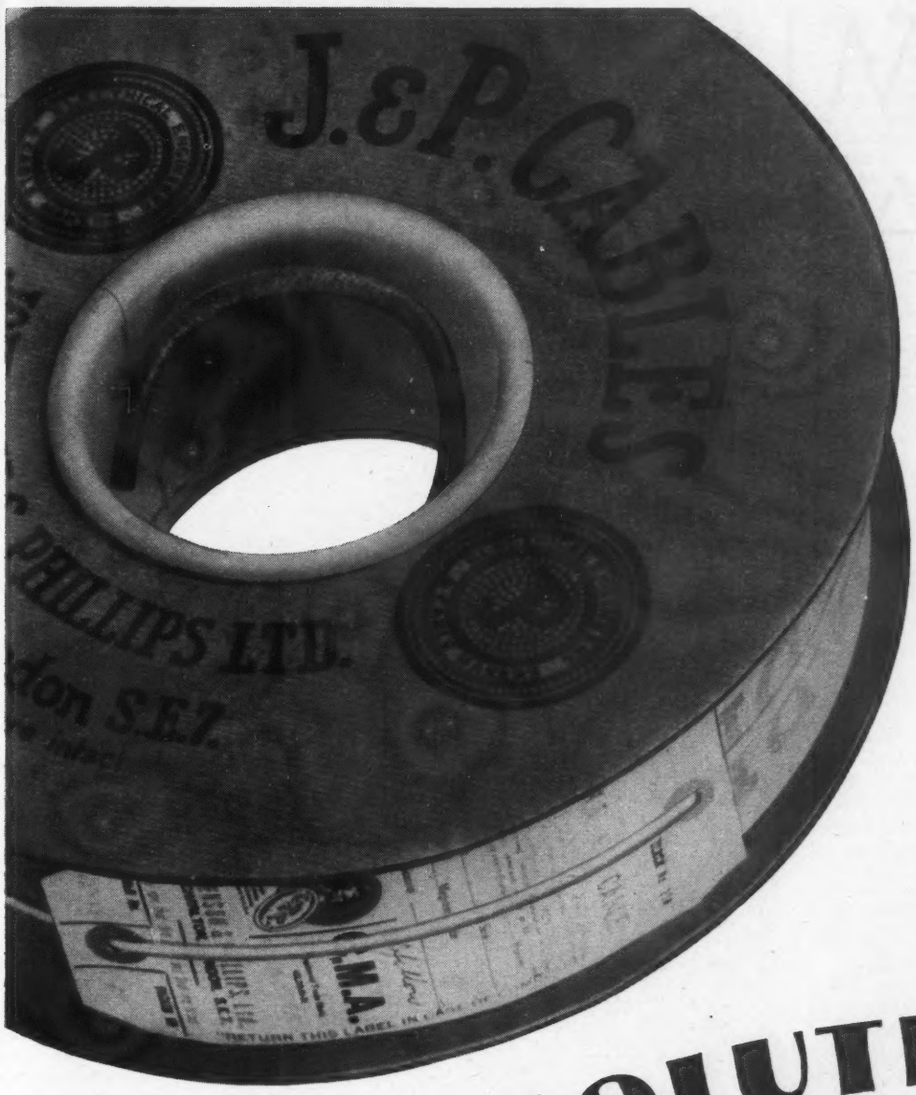
To architects the question of appearance is likely to be of greater interest than structural considerations of a technical nature. Many architects, when considering the adoption of one or another building material, visualise reinforced concrete as meaning one particular type of structure and kind of finish. This, of course, is not the case, and even where there may be a dislike of so-called concrete architecture, reinforced concrete can be used for the entire structural framework, and at the same time the elevation may be entirely in brick, stone, or pre-cast units. In fact, buildings are often constructed exclusively of reinforced concrete, other materials being used only as a veneer to the external walls.

HOUSING ACT, 1930

COMPULSORY PURCHASE OF LAND "ADJOINING" A CLEARANCE AREA.

We may very briefly note a case, Burgesses of Sheffield *v.* Minister of Health (*The Times*, December 18), in which an application was made to the High Court to quash an order of the Minister of Health. The appellants were an ancient charitable corporation who were the owners of land marked on the map 77. The Corporation of Sheffield had by resolution declared four areas, numbered 74B, 75, 76, and part of 77, to be clearance areas, and they were applying for compulsory orders to purchase the whole of the above areas, and the only question raised related to area 77, only a portion of which was included in the clearance area, the portion not so included being coloured grey on the map. In a letter, apparently written to the appellants, it was stated that the acquisition of the grey land was necessary for the satisfactory development of the other areas taken as a whole, but that it would not be necessary for the development of area 77 alone; and the appellants objected that under section 3 there was no power to acquire the land coloured grey unless it was necessary for the development of that particular area numbered 77. The case falls under the latter words of section 3 of the Housing Act, 1930, which empowers the authority to acquire "any adjoining land the acquisition of which is reasonably necessary for the satisfactory development or user of the cleared area."

The Court, affirming the decision of the Minister, held that there was ample material to justify the Minister in deciding that for the proper development of the other areas it was reasonably necessary to acquire the grey land, and that the authority were entitled to treat all the areas as one, for the purpose of developing them in the manner they had adopted.



RESOLUTIONS

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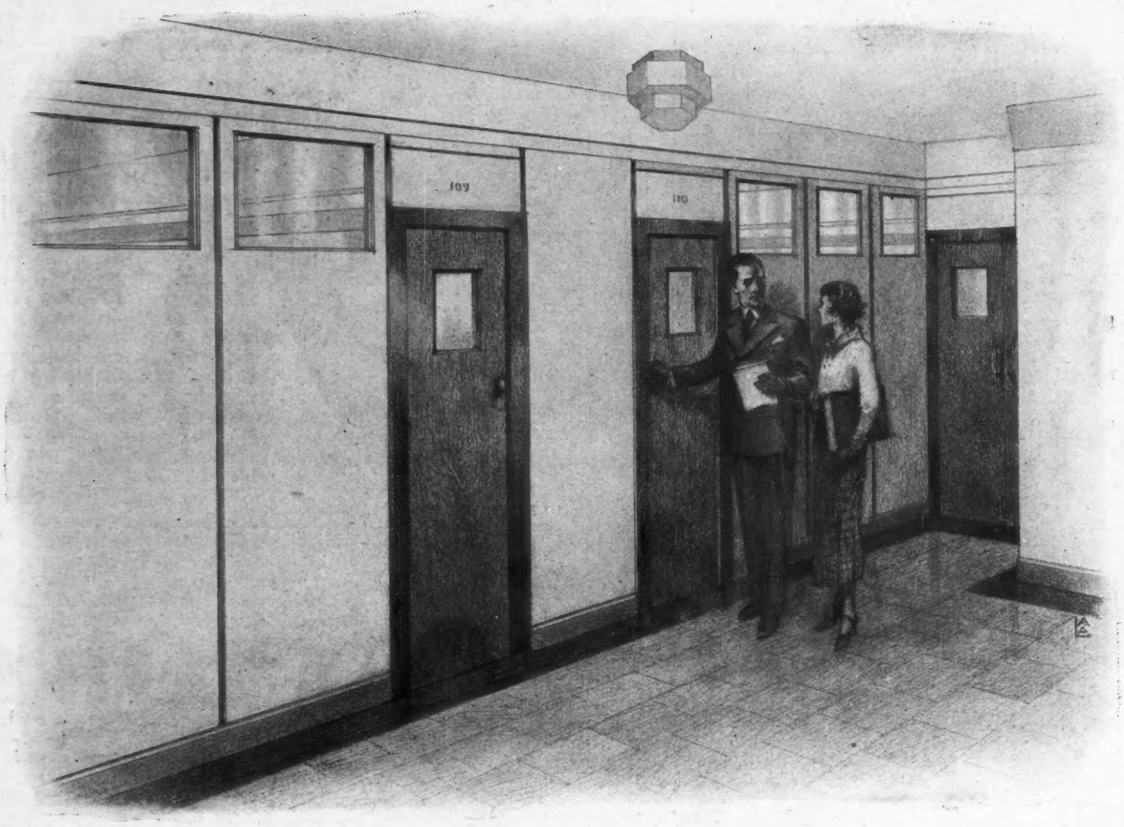

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PRACTICAL HINTS ON FOUNDATION WORK

By J. F. OULTRAM.

THE foundations of important modern buildings are frequently carried down deep enough to accommodate two or three basements. Sometimes, in difficult situations, to execute this work satisfactorily rather more than ordinary building knowledge is required by those in control. During long experience in this kind of work the writer has often been surprised to find how little is known by many of those in control of the fundamental principles and the risks involved, earth and water pressures being frequently under-estimated and sometimes ignored. Lack of knowledge and proper attention in these directions have resulted in many failures, some of them very costly.

The chief items for consideration are :—(1) the watertightness of the new building, and (2) the prevention of settlement of the new building, the adjacent buildings and the roadway.

Water.

On commencing a new building contract one of the first questions for consideration is whether or not the ground contains water above the foundation level. The architect has usually answered this question by having a trial hole sunk to a depth corresponding to that of the proposed foundation level, to expose the nature of the ground to be removed, and particularly to ascertain the bearing value of the ground at the lowest level. This trial hole may have proved the site to be dry, in which case water troubles will not arise. If, however, the trial hole has proved that the ground contains water, trouble may be anticipated. On examining the hole it may be found that water is standing at a considerable height. This may be its normal level, or may be due to the collection of rain water. To settle this it is advisable to instal a small steam boiler and a 1½-in. or 2-in. Pulsometer pump. This type of pump is the best for this purpose, although expensive in steam consumption, because it can be suspended by a light set of differential or similar chain blocks from a simple wooden beam above and across the top of the hole and lowered down the hole near to the water, and be lowered again and again as the water level is lowered by pumping.

For three basements, the bottom of the lowest foundation will be about 40 ft. below the street level; therefore, no pump installed on the surface would continue to function and empty the hole.

When all the water has been removed and the pump has been stopped, the rising level of the water should be carefully observed. If the water level rises rapidly it will indicate that the ground contains a considerable quantity of water, and that arrangements must be made to cope with it whilst the foundation work is in progress. If the quantity of water is considerable, this fact will have been previously discovered by the small pump proving to be incapable of lowering the water level to the bottom and necessitating a change to one of larger size. In fact, the pump that empties the hole and keeps it empty is the best indication of the amount of water to be dealt with. If it is found, in a site about 8,000 ft. in area, that a pump with a delivery pipe not more than 3 in. in diameter keeps the water down at the foundation level, it may be considered as a not very difficult matter, but it must be borne in mind that while pumping is going on, to keep the site dry, water will be drained from under the shallower foundations of existing buildings around the site for a considerable distance, the distance depending on the nature of the ground and the normal level of the water when at rest. This in itself may lead to trouble. To deal with this matter fully, however, would require considerable space and be beyond the scope of this article. The normal level of the water in the ground is a very important point, and should be marked for future reference on one of the drawings showing a cross section of the building to be erected.

If the trial hole is found to be unsatisfactory, or one has not been sunk, immediate steps should be taken to sink one, about 6 ft. by 6 ft., in a convenient position, clear of stanchion and other foundations, down to a level a few feet below that of the lowest foundation, to act as a sump. When the sump has been completed by using the Pulsometer pump, a Worthington or other suitable pump should be installed near the bottom and the Pulsometer pump removed. When the bulk excavation has been entirely removed, the new pump may be placed on the general excavation level. Should water be entering at several points or generally over the site, it will be advisable to lay stretches of 3-in. land-drain pipes in the general formation to convey the water to the sump. The pump should be kept in operation continuously whilst there is water, to keep the water level down until the waterproofing asphalt has been completed and properly backed or covered by the concrete floor and the outer walls, to resist the water pressure which is liable to accumulate, at any time, under the floor asphalt and force it up, where not covered with concrete, if pumping is stopped, although water may be overflowing at the sump.

When the whole excavation is finished and the concrete work is proceeding, the site will be free from water due to pumping. The water by then will probably be forgotten or treated as something unimportant, and the fact overlooked that after the pump is removed, and the sump closed, the water will commence to collect in the surrounding ground and eventually rise to its original normal level, filling up the whole area that has been drained by pumping. The asphalt and its supporting concrete and brickwork will then be subjected to the full water pressure. This may take six or even twelve months, but it will undoubtedly take place, and if the waterproofing has not been properly done leaks will certainly occur.

It is important to note that the effective pressure of water for each foot in height is .43 lb. per sq. in. Supposing the normal level of the water is 20 ft. above the foundations, the total pressure of the water at the bottom will be 20×.43=8.6 lb. per sq. in. It is perhaps advisable to explain that the thickness of the column of water makes no difference in the pressure per sq. in. For example, a wall may be acting as a retaining wall supporting a lake; on the other hand, the water behind the wall may be an eighth of an inch in thickness only; but if the water in each case is 20 ft. high, the pressure at the bottom will be 8.6 lb. per sq. in. in either case. As men engaged in the building trade are accustomed more to loads expressed in terms of feet, it is perhaps advisable to draw attention to the fact that 8.6 lb. per sq. in. equals 1,238.4 lb. per sq. ft. It will therefore be realised that unless due care is taken in waterproofing the basement, its watertightness may be seriously imperilled.

Water pressure has a considerable bearing on the design of the retaining wall and the thickness of the concrete laid over the asphalt and forming the floor of the lowest basement. These are matters outside the builder's province, but should there be, in his opinion, insufficient strength in either or both cases, he should write to the architect, drawing his attention to the supposed weakness.

When pumping is no longer required and the pump is to be removed, it may be found that, with the pump out of action, the water in the sump rises so quickly that insufficient time is available to complete the asphalt and concrete over the top of the sump. Should this condition arise, the sump will have to be closed, with the pump in action most of the time. The following description and sketch (Fig. 1) explain an effective method of doing this :—

Fix a cheap valve on the suction pipe as shown, and fill the sump with rubble up to the required level. Place a three-inch layer of concrete over the rubble to receive the asphalt. Continue the floor asphalt over the sump, working it up and around the pipe to the valve. Now turn off the valve, stop

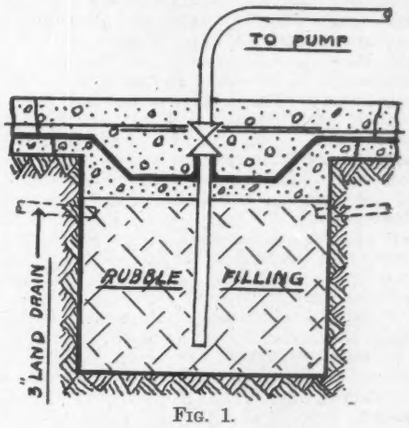

FIG. 1.

the pump and remove the suction pipe above the valve. Bend down the reinforcement and fill in the floor concrete, burying the valve, and load the concrete temporarily until it has set. If the water does not rise too quickly the lower part of the suction pipe may be capped or flanged off and save the expense of the valve.

Waterproofing.

The most satisfactory method of waterproofing basements is the application of bitumen asphalt under the bottom floor of the basement and stanchion foundations, through and up the outside face of the walls, thereby forming a complete tank. Where it is required to resist dampness only, two-coat work is sufficient, but where it is required to resist water, three-coat work is essential.

When the first coat of hot asphalt is applied to concrete or brickwork, which invariably contains moisture, the heat transforms the moisture into vapour and forms bubbles in the asphalt. These bubbles sometimes actually burst through to the face, but being visible they are made good. In other cases, however, the bubbles do not burst through, but some are so nearly through that the covering on the face is frequently only a mere film. When the second coat is applied these are all covered and protected, rendering the work quite satisfactory for resisting dampness. As every coat of asphalt is subject to other small defects, such as pinholes and occasionally faulty workmanship at the joinings, a third coat should always be applied to resist water. Asphalt for basements, particularly when in contact with water, and consequently maintained at a low temperature, should be slightly more plastic than usual, so that it will possess a certain amount of "give" and render it capable of adjusting itself more readily to any slight unequal settlement of the building, and remain intact over any cracks that may occur in the floor concrete or the walls.

With regard to asphalting outside walls, it is always desirable to apply the asphalt to the outside face after the wall is built, but where this is impossible a thin wall is built first, usually half-brick in thickness, outside the position of the main wall, on which the asphalt is applied, the main wall being afterwards built against it. Whenever this method is adopted, great care should be taken, if the main wall is in brickwork, to see that each brick at the back of the main wall is properly bedded or flushed up against the asphalt. If the main wall is in concrete, the concrete in contact with the asphalt should be sloppy to avoid any sharp stones being pressed into the asphalt. No portion of the asphalt should on any account be left with a cavity between it and the main wall,

or there will be danger of the asphalt being fractured at these points later on when the outside earth or water exerts its full pressure against the wall.

Parts of the work that are not easy of access are sometimes left unfinished, joinings not being properly welded owing to the fresh asphalt having lost its required heat. The latter defects are not easily located, their detection requiring very minute inspection. Defective work may become a very annoying and costly matter later on when water appears on the inside face of the walls or on the floor probably after the building is completed. These leaks are often very difficult to stop. The location of the leak in the asphalt is uncertain. Wet may be showing on the wall in one place, but the leak in the asphalt may be several feet away. The situation may compel digging down on the outside of the building, and if the leak is in the underpinning of a party wall, the difficulty and expense are increased many times. Moreover, until the fault in the asphalt is exposed and examined, the apportionment of the responsibility is impossible.

Pipes and cables passing through asphalted walls should be treated as shown in Fig. 2, the main point being to carry the asphalt around and along the pipe five or six inches as shown, whether the half-brick wall exists or not.

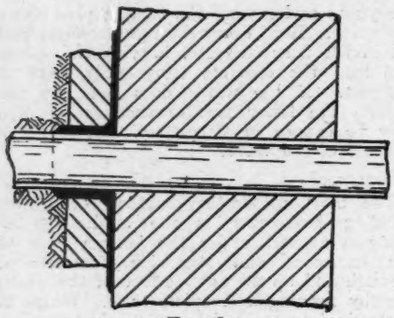

FIG. 2.

Sharp external angles in foundation work, such as that shown in Fig. 3, should be avoided. Should the foundation shown in this case sink a little when it becomes fully loaded, the asphalt at point A is liable to tear All such angles should be splayed, as shown by dotted lines, and extra reinforcement introduced as shown, so that should the foundation sink the concrete floor would be drawn down with it. The floor and the asphalt would be bent down slightly, but the liability of an asphalt fracture would be much less.

There are many waterproofing compounds to be had for mixing with concrete and for coating the face of the finished wall. These,

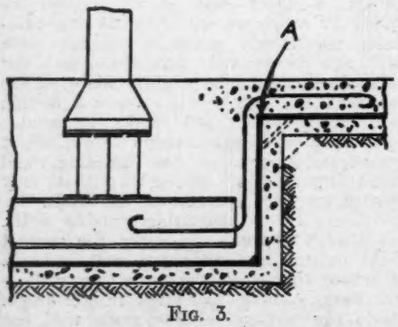

FIG. 3.

in certain cases, give very good results when carefully and skilfully applied. But should the wall or floor crack, due to settlement or other causes, the continuity of the waterproofing will be destroyed. These compounds are very efficacious where it is necessary to waterproof the inside face of a wall through which dampness or even water is penetrating. Success, however, will be achieved only if the treatment is carried out skilfully. If the wall is to be treated with a sand and cement rendering containing the compound in the proportion recommended by the manufacturer, the face of the wall to be rendered must be thoroughly cleaned by brushing. The sand should be fine and washed, and the cement rapid hardening. In the first place, a portion of the mortar containing the compound should be reduced to a liquid state and applied to the wall face and well rubbed in by using a stiff brush, so that all the crevices and small holes will be properly filled and form an adequate key. The first coat of the rendering should follow immediately before the brushing coat has had time to set. The second and final coat should follow as soon as the first coat is ready to receive it.

Should water be percolating through the wall, small holes must be drilled through to the back, at convenient intervals near the lowest percolation in each case, to drain the water away from the back of the wall, leaving the face free from water to enable the rendering to be done. After the rendering has been allowed to harden, these holes may be closed in the following manner: Prepare soft pine plugs three or four inches in length and slightly larger in diameter than the holes. Drive the plugs into the holes about two inches below the surface. Being in contact with water, the plugs will expand and temporarily hold back the flow of water a sufficient length of time for the front portion of the holes to be filled and made good with some of the rendering material. A few odd leaks in a wall may be effectually stopped by the use of plugs and waterproofing mortar in the same manner.

Retaining Walls and Timbering.

When a retaining wall is to be built to support a roadway against a deep basement, extreme care is required in carrying out the work to avoid settlement, particularly if the roadway is comparatively narrow and important buildings are situated on the opposite side, and if, further, there are sewers, gas mains and high pressure water mains below the surface of the road, which is highly probable.

Assuming all the foregoing conditions to exist, it is essential that every endeavour should be made to prevent any settlement of the roadway towards the excavation. We will assume, further, that the roadway is 30 ft. wide between the buildings, that the excavation for the new retaining wall is to be carried down 40 ft. below the road level, that the retaining wall is to be carried forward under the pavement with its outside face in line with the kerb, and that the buildings on the opposite side have single basements (see Fig. 4).

Before commencing operations, the front wall of the building opposite should be examined inside and outside. If any cracks or signs of settlement are in evidence, these should be photographed and the date when taken marked on each negative by the photographer for possible future reference.

The nature of the ground should then be studied and the angle of repose decided upon. If the ground proved to be ordinary earth or stiff clay, the angle may be assumed to be 45 degrees, but as the roadway has been cut up for sewers, etc., it will be advisable to assume an angle of 40 degrees. On reference

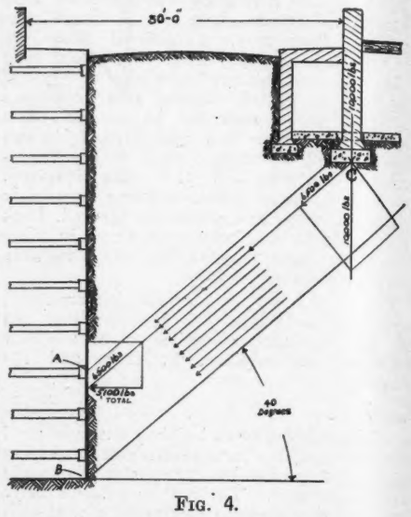

FIG. 4.

to Fig. 4, it will be seen that the foundation of the front wall of the opposite building is above the angle of repose, and therefore resting upon the ground which is liable to slide towards the excavation. An allowance must therefore be made in the strength of the trench timbering to support this additional load, which would become effective on the bottom numbers of the timbering between points A and B. The amount of this load, however, cannot be arrived at accurately, because several factors are unknown, but the following method is reasonably accurate for determining the necessary sizes of the various members of the timbering :—

Calculate the weight of the opposite wall per foot run and add to this an estimated amount to cover the additional loads transmitted to the wall by the floors and roof. Then lay out diagrams of forces, as shown in Fig. 4. The figures shown in the diagrams representing the load are assumed only for the purpose of illustration. It will now be seen that with an angle of repose of 40 degrees the resulting total horizontal load on the timbering from A to B is approximately half the vertical load on the foundation at C per foot run, and that the three bottom walings will be called upon to support this load in addition to the load produced by the pressure of the earth. With an angle of repose of a less degree the resulting load on the timbering would be less and would become effective at a higher level.

As the nature of the earth to be supported

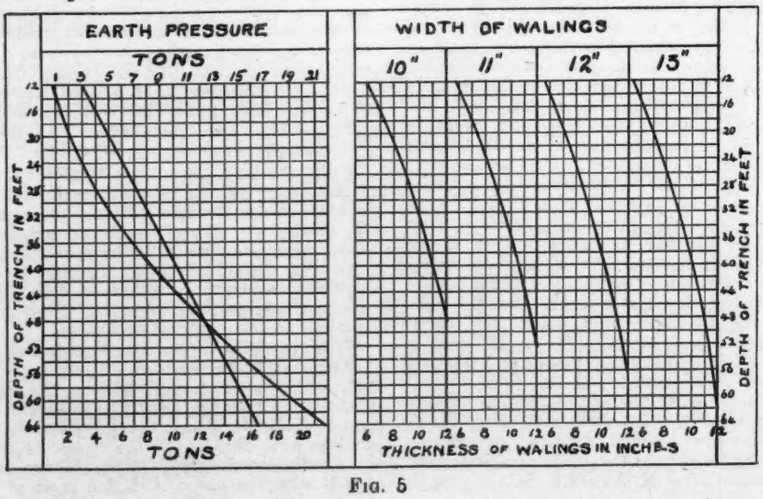
EARTH PRESSURE
TONS
1 3 5 7 9 11 13 15 17 19 21
DEPTH OF TRENCH IN FEET
2 4 6 8 10 12 14 16 18 20
TONS
WIDTH OF WALINGS
10" 11" 12" 13"
6 8 10 12 6 8 10 12 6 8 10 12 6 8 10 12
THICKNESS OF WALINGS IN INCHES
DEPTH OF TRENCH IN FEET

FIG. 5

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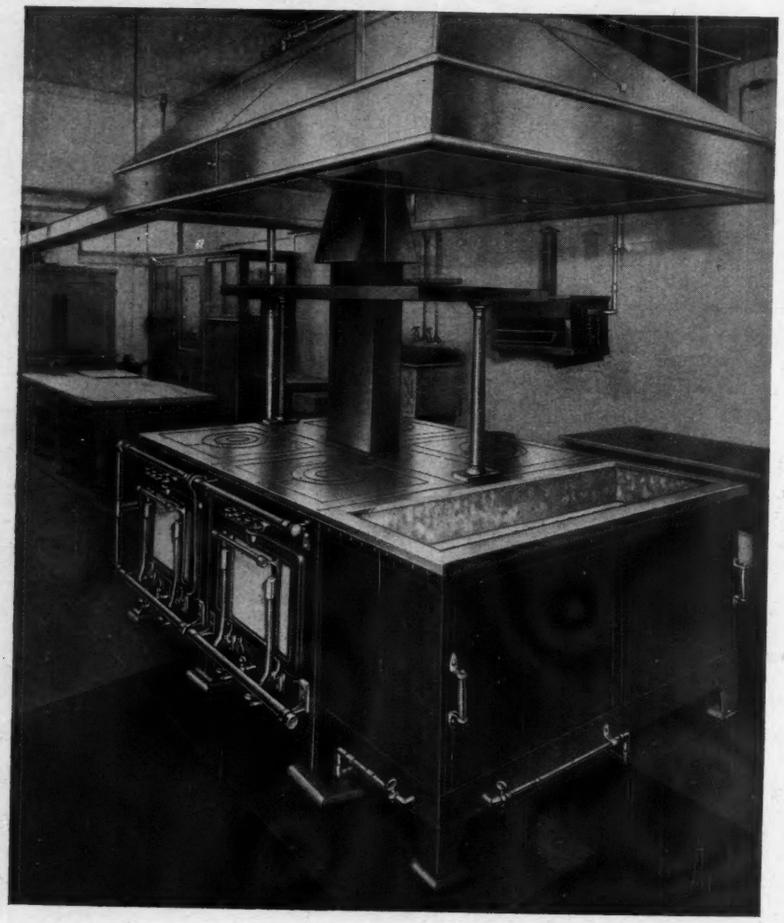

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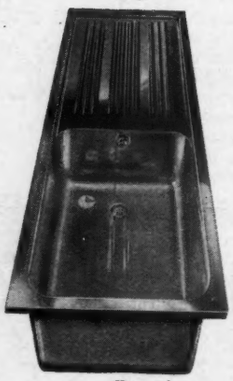

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is somewhat uncertain and the direction of the forces from point C is consequently not fully known, it will be advisable to increase the thickness of the waling and strut immediately above point A as well as those below.

If the site is a narrow one from front to back, it will be convenient, economical and safer to carry the struts right across the site, the whole of the excavation then being taken out in one operation. But if the site is too wide for this to be done, a trench will have to be excavated wide enough to accommodate the proposed retaining wall.

Having regard to the desire to prevent any settlement, the poling boards and the walings must be stronger than usual, in either case, to obviate deflection. As the calculations for deflection are somewhat involved, it is proposed to increase the factor of safety of six, which was used in the article on "Timbering to Keep Foundations" (January 11, 1935, p. 111), to eight, which should answer the purpose. The sectional dimensions of the walings required to resist the pressures safely may be found by reference to the graph (Fig. 5).

The curved line on the left-hand side gives the total pressure of the earth, per foot run of trench, which is to be resisted by the timbering from the top to the bottom of the trench for all depths of trench from 12 ft. to 64 ft. Example: The total load per foot run on the timbering to a trench 32 ft. deep is shown by the curved line to be 5½ tons. The straight line on the left-hand side gives the total load on the waling between struts at any depth from 12 ft. to 64 ft. The struts are assumed to be spaced 6 ft. centre to centre, and the poling boards to be 4 ft. long. Therefore, each section of waling between struts will be supporting a portion of the earth face 6 ft. by 4 ft., = 24 ft. super.

Example:—The total load on 6 ft. of a waling which is 32 ft. down the trench is shown by the straight graph line to be 8¼ tons. If we now continue the 32-ft. line across the graph to the right-hand side, we find the dimensions of the waling at this point should be 10 in. by 10 in., 11 in. by 9½ in., 12 in. by 9 in., or 13 in. by 8¾ in.

To find the sectional dimensions of the waling 40 ft. below the surface to suit the case shown in Fig. 4, where it will be called upon to support the additional load from the opposite buildings, we proceed as follows:—First we find the earth pressure on the waling by referring to the graph which the straight line, at a point opposite 40 ft., gives as 10.33 tons. The load from the opposite buildings and supported by the three bottom walings is 5,100 lb. (see Fig. 4) per foot run of trench. We now divide this by three for one waling, and multiply by six for the length of the waling in feet, and reduce the result to tons, the simple calculation being

$$\frac{\left(\frac{5100}{3} \times 6\right)}{2240} = 4.55$$

tons; adding this to the 10.33, we get a total load of 14.88—say, 15 tons. If we now refer to the graph and trace 15 tons to the straight graph line and then horizontally to the right-hand side, we find in the last column that the size of the waling should be 13 in. by 11⅞ in. To calculate the thickness of the poling boards and struts, references should be made to the previous article already referred to.

Tightening-up screws, as illustrated in the previous article, should be used on one end

FIG. 6.

of each strut, except the top three rows, and steel plates (see Fig. 6) about twice the area of the cross-section of the strut and about ⅜ in. in thickness should be used to prevent the struts squeezing into the walings.

Before the screws are finally tightened up, small wooden wedges should be driven in between the waling and the poling boards on both the top and bottom side of the waling, and on both sides of the trench, to force each board up against the earth. Each frame of timber should be provided with its own independent struts. During very dry weather the whole of the poling boards, on both sides of the trench, should be kept in a wet condition by watering, unless the ground be gravel, otherwise the earth behind will become dry and shrink.

The excavating of the bulk of the earth from the centre of the site will be proceeding whilst the retaining wall is being built. In doing this, care must be taken to leave a bank of earth, marked B in Fig. 7, of ample

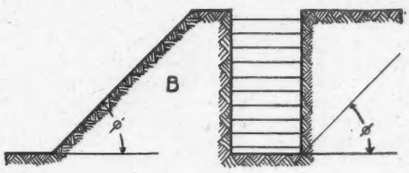

FIG. 7.

thickness to withstand the pressure transmitted to it by the trench timbering.

As a working space is usually retained at the top of the bank, it will be quite satisfactory if the slope at the back is made to correspond approximately to the angle of repose.

When endeavouring to obviate settlement it is important to bear in mind that the back face of the trench is just as important as the front face, and that no portion of the earth on the front side of the trench should be left unsupported any longer than is absolutely necessary. Neglect in this respect is a frequent cause of slight settlement.

In extreme cases the trenching and the building of the retaining wall should be carried out in short sections about 24 ft. long, particularly the base if a heel is provided to the wall, as shown in Fig. 9, requiring undercutting, the disadvantage being the increase in cost and the time occupied in doing the work. If a half-brick wall is built against the earth to receive the vertical asphalt, before the retaining-wall concrete is poured, the bricks should be bedded with mortar against the earth, so that no cavities are left behind to cause settlement.

Before placing concrete, particularly that for stanchion bases, the earth on which it is to be placed should be consolidated by ramming, because in digging out the earth to the required level the finished surface will no doubt be loosened.

The diggers very often exceed in patches the depth required and then fill in with loose material to leave the formation level. If the foundations are in blue clay the necessity for ramming is not so great, provided no loose

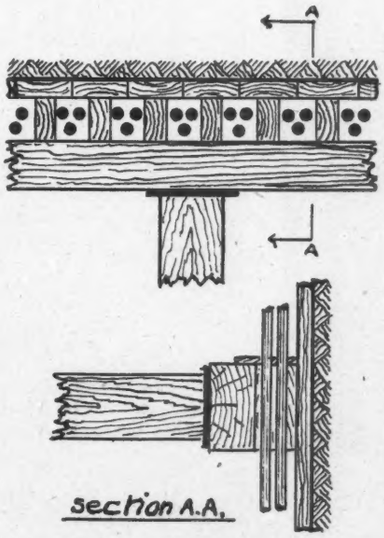

FIG. 8.

material has been introduced, but even with blue clay it has been found that, in deep excavations, the clay is inclined to rise a little on account of being relieved of the load of earth previously resting upon it and being exposed to the weather, especially when left for any length of time.

A point that is often overlooked when timbering a trench for a reinforced concrete retaining wall is the provision for inserting the reinforcing bars clear of the walings. This can be done by placing blocks of wood about 6 in. wide and 3 in. thick between the walings and the poling boards, and spaced to suit the bars as shown in fig. 8. The blocks are placed in position by first lightly attaching them to a board with nails. The board rests upon the waling, holding the blocks in position until the waling is secured, when the board is removed. When the trench is ready to receive the bars, these may then be slipped down from the top between the blocks. This must be discussed with the designer of the retaining wall, so that the vertical portion of the curved bars at the bottom may be designed short enough to render it possible to push the vertical portion up into position behind the second waling from the bottom after the first, or bottom, waling has been removed (see fig. 9). When removing the

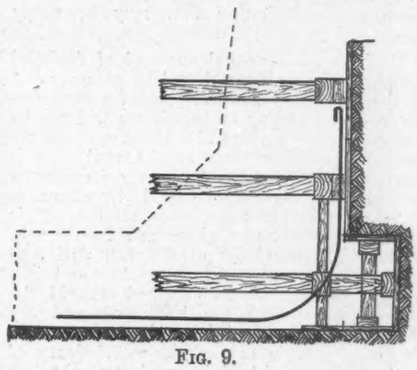

FIG. 9.

timbering the poling boards can be taken out between the bars. This method of timbering has the distinct advantage of leaving all the timbering entirely free, and, in addition, holds the bars nicely in position.

The concrete for the wall should be mixed to a semi-fluid state, just sufficient to make it "swing" when in position, but not so fluid that water appears on the surface. Stiff concrete requiring ramming or hammering on the shuttering is, in the writer's opinion, not good, because it cannot adjust itself between and around the bars; ramming breaks some of the stones, and hammering on the shuttering draws the cement to the boards and destroys the uniformity of the mixture.

Timbering to shallow foundations is generally done by using raking shores, as shown in Fig. 10. This method, however, is not advis-

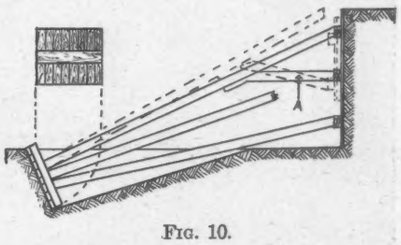

FIG. 10.

able for depths of more than 15 ft. If circumstances compel its use for greater depths, the strutting should be extremely well done. There have been more failures with this method of timbering than with any other, the failures being due chiefly to one of three causes, viz.: Fixing the struts at too steep an angle; introducing short struts marked A, resulting in failure as shown by dotted lines; and providing foot blocks to the struts of insufficient area. The foot blocks should be formed as shown, and the size should be ample, varying to suit the bearing value of the ground. Timbering by this method

should also be done in sections if the ground is treacherous and settlement is to be avoided.

Underpinning.

Underpinning the main walls of adjoining buildings is work that of necessity must be done in short sections. The length of each section is usually about four feet, but it is governed by the nature of the wall to be underpinned, the position and size of window and door openings, if any, and the depth to which the underpinning is to be carried. If the underpinning is to be carried down a considerable depth it is advisable to make the length of the sections six or eight feet, so that the first sections built will not form a number of slender pillars.

Before commencing the excavation the wall should be examined for cracks or other signs of settlement, and if any are found they should be photographed, as mentioned previously; then the thickness of the wall at the various floor levels should be ascertained and its weight calculated, together with the loads transmitted to the wall by the floors and roof. From these it will be possible to arrive at the total load per square foot which is being supported by the ground at the foundation level. On comparing this with the estimated bearing value of the ground, the margin of safety will be known, and will decide the number of sections of underpinning that may be safely dealt with at one time.

If the wall is an old one and of doubtful quality, raking shores should be erected; but if the wall is an integral part of a comparatively new building raking shores will not be required. The amount of assistance the shores provide to the support of the wall load is negligible. The only effect they have upon the wall is to maintain its vertical position.

When excavating for each section, it is highly important to timber the sides strongly to keep the remainder of the wall well supported to prevent settlement. As the brickwork is rising, blocks of wood should be driven in between the brickwork and the walings. When the brickwork reaches nearly to the underside of the old wall, plenty of cement mortar should be used, and the last few bricks forced into it to ensure the actual underpinning being quite solid. A very common practice, in finally pinning up to the old work, is to drive in small pieces of slate or tile. This should not be allowed. The last course of bricks should be solidly embedded in cement mortar tight up to the old work in the way mentioned above, or, by chipping off a portion of the top bed on the back side of each brick, making it slightly wedge form, so that when the brick is forced into the mortar solidity is assured. If the bricks have "frogs" these must also be filled. The bonding of the new work should be marked along the face of the old wall beforehand to ensure proper bonding when the sections are joined up.

Setting Out.

When commencing a new building, one of the first important things to do is to check the overall dimensions of the site carefully. The most accurate way of doing this, where possible, is to use two 20-ft. rods, known to be correct, placed end to end, the back one being carried forward to the front of the other, and so on to the end of the distance being measured. This should be done two or three times over, and then finally checked through with a steel tape to leave no doubt as to its accuracy.

Measuring with a steel tape alone may easily result in error, except by those who are highly proficient in its use. The writer had experience of a distance of 300 ft. being measured along a pavement kerb in front of a new building site by four different pairs of men using the same steel tape, which resulted in a difference of one and a half inches between the shortest and the longest measurement. It was all a matter of how taut the tape had been held over the uneven surface of the kerb, which was in a very bad condition.

Changes of temperature will also make differences n steel tape measurements due to expansion and contraction of the tape. A change of temperature of 30 deg. Fahr. will make a difference of approximately ¼ in. in 100 ft. length of tape.

The next important thing to do is to establish bench marks around the site in relation to the datum, and centre line points. These should all be firmly fixed in convenient positions where they will not be disturbed. These points should be checked over several times to ensure accuracy so that they will be beyond question when an error occurs in the intermediate setting out of the various parts of the work. Setting out requires very careful attention. Errors are bound to occur, but to prevent them escaping discovery, the writer recommends his own practice of always checking up every level and dimension with other points relative to them being satisfied as to their accuracy.

Those entrusted with setting out should make a test of a steel tape measurement when the tape is unsupported throughout its length in the following way:—Mark off 15, 20, 25 and 30 ft. with the tape lying flat on the flange of a steel joist, carefully marking the distances on the edge of the flange. Then check the various measurements with the tape unsupported along the side of the flange. This will show how much increase to allow for deflection of the tape when measuring across open spaces.

TIMBERING TO A DEEP TRENCH FOR A REINFORCED CONCRETE RETAINING WALL NEARLY 300 FT. LONG. (SEE FIG. 8.)
MR. G. KAY GREEN, Architect.
MESSRS. HOLLIDAY & GREENWOOD, LTD., Contractors.

EMPLOYMENT OF RATING SURVEYORS BY PUBLIC AUTHORITIES

THE following memorandum has been issued by the Councils of the Chartered Surveyors' Institution, the Auctioneers' and Estate Agents' Institute, the Land Agent's Society, the Incorporated Society of Auctioneers and Landed Property Agents, and the Rating Surveyors' Association, for consideration by Rating Authorities and County Valuation Committees.

Since the Rating and Valuation Act of 1925 came into force it has been the practice of some authorities responsible for rating to invite surveyors to submit tenders for valuations for rating purposes.

The leading professional organisation—*i.e.*, the Chartered Surveyors' Institution, the Auctioners' and Estate Agents' Institute, the Land Agents' Society, the Incorporated Society of Auctioneers, and the Rating Surveyors' Association—whose members are engaged in the work of valuation for rating, either on behalf of rating and assessment authorities or on behalf of ratepayers, view this practice of tendering with concern, and desire to draw the attention of the authorities to the dangers and abuses which result therefrom.

It is appreciated that a particular responsibility attaches to the authorities to see that public funds are so administered as to secure efficient service at reasonable cost; and it is doubtless from motives of economy as well as from lack of experience as to what would be an appropriate fee in the circumstances that the practice of inviting tenders arose. The object of this memorandum is to place on record the considered opinion of the leading bodies in the profession that the method of inviting tenders from professional men in competition with one another, and with others, on the basis of fees does not produce either true economy or real efficiency.

While the motives actuating the authorities are appreciated, it is, nevertheless, a matter for regret that the methods adopted by those authorities, who have favoured the tendering system when engaging rating surveyors, differ fundamentally from those commonly pursued when other categories of professional advice, notably medical and legal advice, are sought.

It is unsound to defend the tendering system by reference to the advantages and safeguards which accrue from the placing of building work out to tender. No true analogy exists between tenders for professional work, such as rating, and building tenders, because the tendering system depends for its efficacy upon specified work, visible for inspection during progress, as, for example, in the case of buildings. Rating surveyors are only able to tender on their individual interpretation of the amount and character of the work to be done. Tenders so based cannot properly be compared one with the other. Lack of specified detail constitutes an invitation for the unduly low tenders of the inexperienced or unreliable valuer who, on being appointed, may be compelled to protect himself from loss arising from an inadequate quotation by recourse to imperfect work. Where low tenders are submitted and accepted, the valuers engaged can avoid loss by giving too little personal or skilled attention to the work and by neglecting to employ properly qualified assistants in the preparation of detailed particulars. Further, they are able to cover their omissions by returning low valuations in the reasonably certain belief that, as the assessments reported are low, they will not be contested.

With the experience gained in the first and second General Revaluations of 1929 and 1934, the Councils subscribing to this memorandum desire to urge that any need there may have been for inviting tenders for rating has disappeared. They would expect that rating authorities and county valuation committees are now in a position to judge the proper cost of proper valuation work and, at a stated or agreed fee, to instruct a rating surveyor or surveyors of their own selection to act for them.

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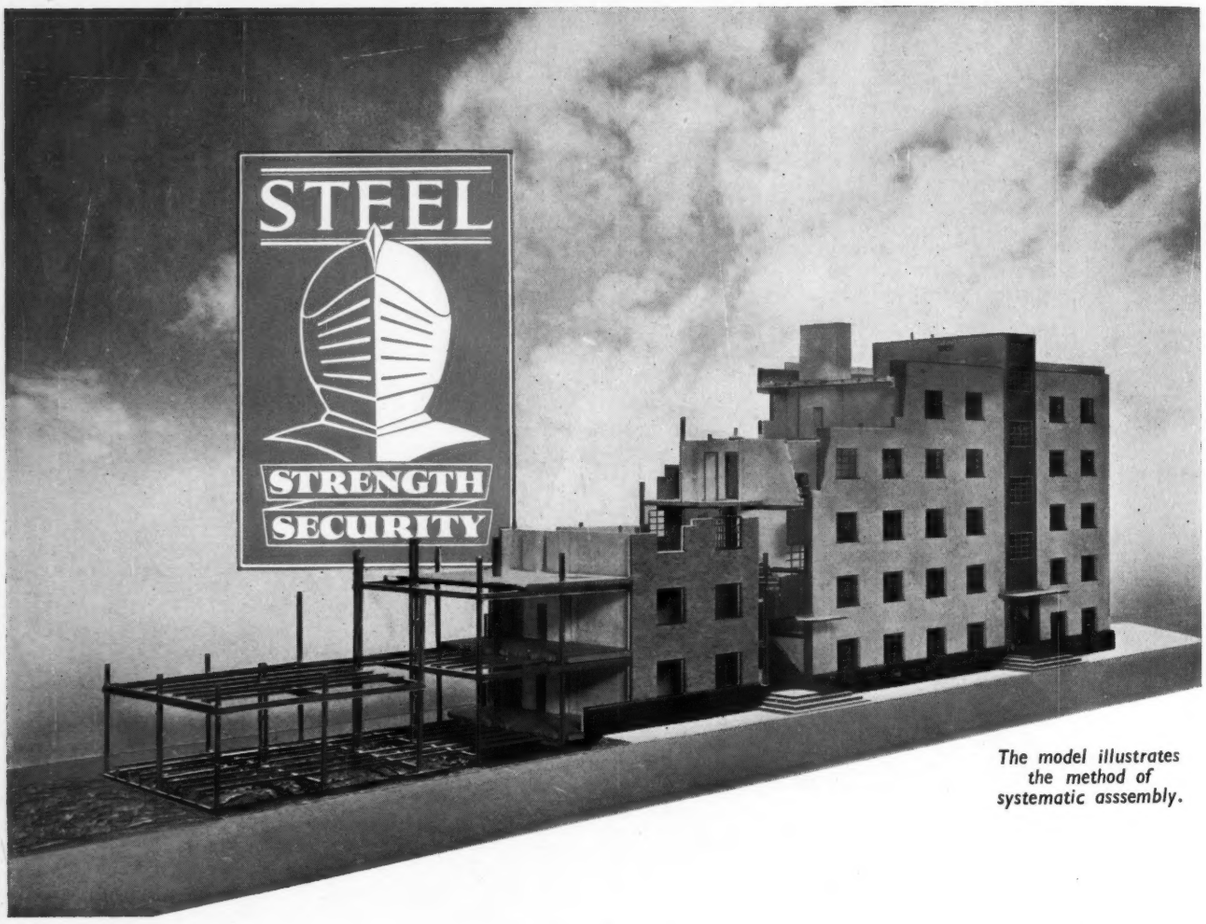


The model illustrates the method of systematic asssembly.

Working Class Flats.

The photograph shows a model of a block of working class flats designed in accordance with the recommendations of the Council for Research on Housing Construction.

The design provides for the greatest possible use of standardised components for effecting economies by rapid assembly, and for a dry building technique.

A booklet on "Housing Needs and Economy in Building" is available on request.

BRITISH STEELWORK ASSOCIATION,
ARTILLERY HOUSE, WESTMINSTER, S.W.1.

TIMBER IN LONDON BUILDINGS

By EDGAR L. CAMPBELL, P.A.S.I., A.M.I.Struct.E., A.I.Arb.
(Certified Surveyor under the London Building Act).

It is a somewhat ironical reflection upon "modern" tendencies that increasing attention is being paid to the more "traditional" materials; and foremost among such movements stands the interesting development in timber usage and appreciation.

Ever since the Fire of London the authorities have continually incorporated in their enactments provisions aimed at the prevention of similar calamities, and the London Building Act of 1930 has as one of its objects "the diminution of the danger arising from fire." Surprise is, therefore, sometimes expressed that so many opportunities exist for timber construction in London buildings.

As the modern fire-fighters and their apparatus steadily improve in efficiency, so the danger of widespread fire diminishes; and with preservation and fire-proofing of timber readily obtainable, it is useful to consider the extent to which this material may be introduced.

London Building Act, 1930.

The London Building Act, 1930, allows a wall to be carried on a "bressummer," and the definition of "bressummer" by Section 5 includes "a wooden beam."

In addition to the bearing of a bressummer upon any party wall or external wall, Section 62 of the Act calls for at least 4 in. of additional support at each end, and this may be upon a wooden story post.

Most buildings (unless steel or reinforced concrete framed) may have wooden floors, staircases and roofs. To accord with Section 80, a building exceeding ten squares in area, used in part for purposes of trade and in part as a dwelling, must have the parts separated by walls and floors constructed of fire-resisting material, together with all means of approach to the dwelling portion. Also, pursuant to the same section, every building exceeding twenty-five squares in area, containing separate sets of chambers or offices, must have fire-resisting floors and principal staircases. Further, by Section 68, a story more than 60 ft. above street level, constructed in the roof of a domestic building, must be of fire-resisting materials throughout.

Section 79 permits shop fronts of timber to a height of 25 ft. above the pavement, and not nearer than 4 in. to the centre of any party wall. No timber is permitted within 4 in. of a party-wall centre.

Timber may be used for door and window frames, also for eaves, barge-boards and cornices to detached and semi-detached dwelling-houses, and to other dwelling-houses in which the party walls are corbelled out so as to project 4 in. beyond.

Special consents have been given by the London County Council for timber doorhoods, window jalousies, flag masts and other wooden structures. Wooden structures are also dealt with by Section 91 of the Act, which provides for control by the local authority. In practice, a Borough Council will grant a licence for a wooden structure not exceeding 200 sq. ft. in area and 7 ft. high to the eaves, provided no other provision of the Act is contravened.

Fire-resisting Hardwood Construction.

Although the enactments call for fire-resisting construction, timber is not necessarily excluded. In fact, the first schedule to the London Building Act, containing a list of materials which for the purposes of the Act are deemed to be fire-resisting, includes several references to timber, as follows :—

Part II. For special purposes :—

(1) In the case of doors and shutters and their frames, oak, teak, jarrah, karri or other hard timber, not less than 1¾ in. finished thickness, the frames being bedded solid to the walls or partitions;

(2) In the case of staircases and landings, oak, teak, jarrah, karri or other hard timber, the treads, risers, strings and bearers being not less than 1¾ in. finished thickness, and the ceilings and soffits (if any) being of plaster or cement;

(3) Oak, teak, jarrah, karri or other hard timber when used for beams or posts or in combination with iron, the timber and the iron (if any) being protected by plastering or other incombustible or non-conducting external coating not less than 2 in. in thickness, or in the case of timber not less than 1 in. in thickness on iron lathing;

(4) In the case of floors and of the roofs of projecting shops, pugging of concrete composed of broken brick, tile, stone chippings, ballast, pumice or coke breeze and lime cement or calcined gypsum not less than 5 in. thick between wood joists if a fillet 1 in. square is secured to the sides of the joists and placed so as to be in a central position in the depth of the concrete or concrete blocks not less than 5 in. thick laid between wood joists on fire-resisting bearers secured to the sides of joists;

(5) In the case of verandahs, balustrades, outside landings, the treads, strings and risers of outside stairs, outside steps, porticos, and porches, oak, teak, jarrah, karri or other hard timber not less than 1¾ in. finished thickness;

(7) In the case of glazing for windows, doors and borrowed lights, lantern or skylights, glass not less than ¼ in. in thickness in direct combination with metal, the melting-point of which is not lower than 1800 deg. F. in squares not exceeding 16 sq. in., and in panels not exceeding 2 ft. across either way, the panels to be secured with fire-resisting materials in fire-resisting frames of hardwood not less than 1¾ in. finished thickness or of iron.

Part III of the First Schedule adds : "Any other material from time to time approved by the Council as "fire-resisting," and empowered by this provision the Council have at various times approved the following timbers : Tasmanian myrtle wood, Andaman padauk, Nigerian Iroko or African teak, Gold Coast odum, African walnut, Mora (from British Guiana or Trinidad), crabwood (from Rhodesian bean mahogany, pyinkado (from Burma), Andaman pyinma, Queensland maple, Secconddee mahogany (from the Gold Coast), red meranti (from Malaya), English ash, and British Columbia Douglas fir, all as fire-resisting for the purposes for which hard timber may be used and under the conditions relating to the use of oak, teak, jarrah and karri and other hard timbers set out in Part II of the Schedule.

Fire-resisting Softwood.

On April 23, 1923, the London County passed the following resolution :—

"That the Council, in pursuance of the powers vested in it by the First Schedule (Part III) to the London Building Acts (Amendment) Act, 1905, do approve as fire-resisting, for the like purposes for which hard timber may be used, the following materials—namely, suitable softwoods which have been impregnated throughout with ammonium phosphate, subject to the following conditions : (i) that the district surveyor shall be furnished with a certificate from the firm carrying out the impregnation, stating (*a*) that the whole of the wood has been thoroughly impregnated, and (*b*) that a door made of softwood similarly impregnated and measuring 6 ft. by 3 ft. by in. thick will resist the passage of smoke or flame when exposed to a temperature of 1500 deg. F. for a period of one hour, and that, when so exposed, the increase of temperature registered by an un-

TIMBER BEAMS

TABLE SHOWING SAFE DISTRIBUTED LOAD IN POUNDS
WORKING STRESS 1200 LBS. PER SQUARE INCH FOR FIR

D x B	SECTION MODULUS INCH UNITS	SPAN IN FEET 1	2	3	4	5	6	7	8	9
11 x 4	80·7	22000	22000	21512	16134	12907	10756	9219	8067	7171
11 x 3	60·5	16500	16500	16133	12100	9680	8067	6914	6050	5378
11 x 2	40·3	11000	11000	10813	8110	6488	5406	4634	4055	3604
9 x 4	54	18000	18000	14400	10800	8640	7200	6171	5400	4800
9 x 3	40·5	13500	13500	10800	8100	6480	5400	4629	4050	3600
9 x 2½	33·7	11250	11250	8987	6740	5392	4493	3851	3370	2996
9 x 2	27	9000	9000	7200	5400	4320	3600	3086	2700	2400
8 x 4	42·7	16000	16000	11387	8540	6832	5693	4880	4270	3796
8 x 3	32	12000	12000	8533	6400	5120	4266	3657	3200	2844
7 x 4	32·7	14000	13080	8720	6540	5232	4360	3737	3270	2906
7 x 3	24·5	10500	9800	6533	4900	3920	3266	2800	2450	2178
7 x 2	16·3	7000	6520	4347	3260	2608	2173	1863	1630	1449
7 x 2½	20·4	8750	8160	5440	4080	3264	2720	2331	2040	1813
6 x 3	18	9000	7200	4800	3600	2880	2400	2057	1800	1600
6 x 2	12	6000	4800	3200	2400	1920	1600	1371	1200	1067
5 x 2	8·3	5000	3340	2213	1660	1328	1106	949	830	716
4½ x 3	10·1	6750	4040	2693	2020	1616	1347	1154	1010	
4½ x 2	6·7	4500	2680	1787	1340	1072	893	766	670	
4 x 3	8	6000	3200	2133	1600	1280	1067	914		
4 x 2	5·3	4000	2120	1413	1060	848	707	606		
3 x 2	3	2400	1200	800	600	480	400			

D x B	SPAN IN FEET 10	11	12	13	14	15	16	17	18	19
11 x 4	6454	5867	5378	4964	4609	4302	4033	3796	3585	3397
11 x 3	4840	4400	4033	3723	3457	3227	3025	2847	2689	2547
11 x 2	3244	2949	2703	2495	2317	2163	2027	1908	1802	1707
9 x 4	4320	3918	3600	3323	3085	2880	2700			
9 x 3	3240	2945	2700	2492	2314	2160	2025			
9 x 2½	2696	2451	2246	2074	1925	1797	1685			
9 x 2	2160	1964	1800	1662	1543	1440	1350			
8 x 4	3416	3105	2846	2628	2440					
8 x 3	2560	2327	2133	1969	1828					
7 x 4	2616	2378	2180							
7 x 3	1960	1782	1633							
7 x 2	1304	1185	1086							
7 x 2½	1632	1484	1360							
6 x 3	1440	1309								
6 x 2	960	873								

TO RIGHT OF ZIG-ZAG LINE SPAN EXCEEDS 20 x D. LOADS TO LEFT OF DOTTED LINE LIMITED BY SHEAR.

shielded thermometer 12 in. away from the other surface of the door will not exceed 10 deg. F.; (ii) that the persons who have impregnated the wood shall at their own expense make such tests as the district surveyor may consider necessary; (iii) that the thickness of the impregnated wood shall be at least equal to that required for hard timber by the First Schedule to the London Building Acts (Amendment) Act, 1905, and that, where this thickness is built up, the pieces of impregnated wood shall be not less than 1¾ in. finished thickness; (iv) that all panels and boarding shall be properly tongued and grooved; (v) that the woodwork shall receive at least two coats of paint, varnish or enamel; and (vi) that doors and other structures of impregnated wood, in respect of which a certificate is furnished as required by the foregoing condition (No. 1) be distinguished by a mark or device cold-die stamped on the outside edge of the hanging style of doors and in some easily found but inconspicuous position on other structures, and that such mark or device be not used on wood which does not comply with the conditions specified in the above-mentioned certificate."

When approving, under Section 96 of the Act, the provision of means of escape from new buildings, and when requiring the provision of means of escape from old buildings under Section 97, the Council usually accept as fire-resisting flush-panelled solid deal doors not less than 1¾ in. finished thickness. Glazing of a fire-resisting quality in solid deal sashes and frames of a similar thickness is also accepted.

The fire-resisting properties of solid timber construction have been proved in American "slow burning" mill buildings where the floors are built solid with timber. The effect of fire is to form a thickness of charcoal on the surface of such a floor, thus insulating the interior wood, slowing up combustion and giving ample time for occupants to escape.

Safe Loads on Timber Beams.

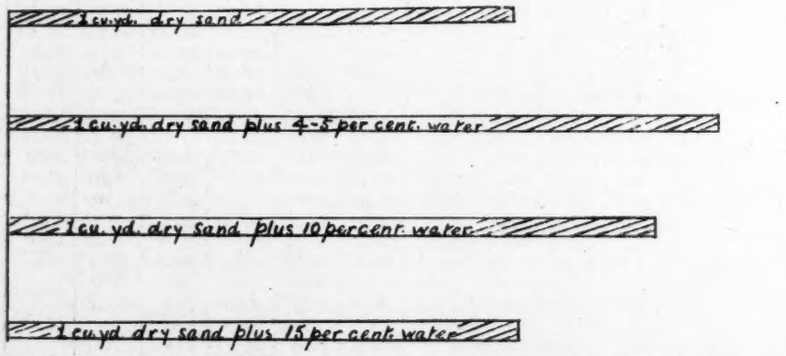
Although the strength of timber beams cannot be calculated with exactitude, it is generally agreed that 1,200 lb. per square inch is a reasonable and safe bending stress to allow in fir beams. For hardwood, such as oak, the stress may be safely increased to 1,500 lb. per square inch.

The Table given on page 107, prepared by the author, will be found to include the usually obtainable sizes. The loads to the left of the dotted line are limited by the safe shear stress of 250 lb. per sq. in. The maximum span should not exceed 20 times the depth of the beam. If hardwood beams are used, add 25 per cent. to the loads given in the Table. The weight of the beam itself will vary from 25 to 45 lb. per cubic foot for fir, and from 40 to 60 lb. per foot cube for hardwood, and must be deducted from the tabular loads.

SHOULD SAND BE MEASURED BY VOLUME?

By a CONTRIBUTOR.

In a recent number of *The Builder* a correspondent raised the question: "What is a cubic yard of sand?" This is a matter which has concerned concrete engineers for some years, but, apart from concrete specialists, there are few who know that the amount of sand that will completely fill any given measure may vary by as much as 40 per cent., depending upon the water content and the fineness of the sand. Below is shown in diagrammatic form the variations in the bulk of 1 cu. yd. of fine dry sand with varying proportions of moisture, as proved by tests. It is seen that an addition of from 4 to 5 per cent. of water to dry sand increases its bulk by approximately 40 per cent. When more


1 cu. yd. dry sand
1 cu. yd. dry sand plus 4-5 per cent. water
1 cu. yd. dry sand plus 10 per cent. water
1 cu. yd. dry sand plus 15 per cent. water

water is added the bulk falls until, with an addition of 10 per cent. of water, the increase is only about 25 per cent. Saturation point is reached with the addition of about 15 per cent. of water, and the sand then falls to the same volume as when it was dry. Further additions of water simply lay on top of the sand. The volume of sand thus increases with a small addition of water, and decreases with further additions until saturation point and the original volume is reached, and it is therefore obvious that sand can only be measured by volume so long as the moisture content is known and allowed for, or if the material is dry. Coarse sands increase in bulk less than fine sands with any proportion of water below that necessary to saturate the material.

This property of sand has three important results in the everyday practice of building: (1) Neither the supplier nor the customer knows exactly how much sand is contained in a "cubic yard"; (2) the builder does not know how much concrete-making material he will receive in each cubic yard of sand with varying moisture content; and (3) the specified proportion of sand cannot be maintained in concrete mixes.

Moisture Content and Price.

Of these three results the first and second have an intimate bearing on the price of sand. When estimating for concrete work the builder has to know the amount of materials required in specified proportions to produce a given quantity of concrete—that is, dry concrete. If the work requires, say, 100 cu. yds. of dry sand, and the sand as purchased contains sufficient water to increase its bulk by 20 per cent., he receives only about 83 cu. yds. of sand, although he pays for 100 cu. yds. In practice it is usual to measure the sand by volume in predetermined quantities for each mixer batch, so that the builder does not suffer financially by purchasing 120 cu. yds. of a moist sand to give the 100 cu. yds. required in the work. But by using volumetric measurements to proportion moist sand, the concrete mixture is deficient in sand and the specified proportions are not being maintained.

In the past this involuntary departure from the specified proportion of sand in concrete has not been of great moment because it has been easy to make concrete with a strength far in excess of that which could be taken into account in design under the existing regulations. One of the results was a lack of uniformity of strength in different parts of a structure due to variations in the proportion of sand in the concrete according to the amount of moisture it contained when delivered to the site and measured by volume into the mixer.

The higher stresses now permitted on concrete, and the certainty that still higher stresses will be permitted in the future provided stronger concrete can be produced, has resulted in much attention being given to the proportioning and grading of aggregates, particularly in connection with the bulking of sand.

New Measuring Plant.

A few years ago on several important works the amount of sand in a cubic yard was kept constant by inundating the material with water before it was measured either by volume or weight, but this method is seldom adopted nowadays. A more recent method is to use a plant which measures all the concrete materials by weight and is fitted with an instrument which records the amount of moisture contained in the sand and coarse aggregate. The proportions are thus kept constant, as a greater volume of sand is added to each batch when it is damp than when it is dry. This type of plant cannot be used on small contracts on account of its cost, but it is being increasingly used on large work.

A further development is the installation of plant of this type near a source of suitable aggregate and the supply of ready-mixed concrete in which the proportions and grading are accurate according to specification. Two of these plants are already in operation in the London district, others have been installed in the provinces, and many others are contemplated in various urban areas where the requirements of concrete within a limited radius give promise of sufficient demand. The aggregates are washed, crushed, and graded at the plant and measured into specially designed road vehicles together with the desired quantity of cement for the batch. The vehicle is fitted with a totally enclosed mixing drum and a water container. When it nears the site where the concrete is to be deposited, the driver puts the mixing drum into operation and adds the water, so that when the site is reached the concrete is ready mixed. This method avoids the segregation of materials which occurred with the older method of supplying ready-mixed concrete, in which the water was added and the materials mixed before the vehicle left the central mixing station.

Another method commonly used to overcome the possibility of a deficiency of sand in concrete is to specify more than is required. That is, if the required strength is obtained with, say, a mix in the proportions of one part of cement to two parts of sand to four parts of coarse aggregate when the materials are measured by volume in the dry state, a mix of 1 : 2½ : 4 is specified. This ensures that the concrete is not deficient in sand when the latter contains the proportion of water which causes maximum bulking, but oversanding occurs when the sand contains more or less moisture than the quantity which gives the greatest increase in volume. It is unsatisfactory because it results in concrete of varying strength due to varying moisture contents (and therefore varying proportions) of the sand, and it is uneconomical because unnecessarily large proportions of sand are used, and concrete with unnecessarily high strength is consequently obtained, when the moisture content is such that the bulking is less than the worst case allowed for in deciding upon the specified proportions. It is, however, a method which prevents the production of concrete with less strength than is required, due to the use of insufficient sand; it is adopted by several county surveyors for road work, where means of making allowance for the moisture content of sand are not available.

Measurement of sand by weight involves less loss to the customer when the moisture content is near the quantity which gives maximum bulking, because if this quantity is 5 per cent. a ton of sand will only contain one-twentieth part of water, whereas the

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THE ORGANISATION OF TRANSPORT

A PAPER was read before the Royal Society of Arts recently by Mr. Frank Pick (vice-Chairman of the London Passenger Transpor, Board) on "The Organisation of Transport, with Special Reference to the London Passenger Transport Board."

The London Passenger Transport Board, said the lecturer, represented the amalgamation of 165 undertakings, or parts of undertakings, previously conducted as separate entities, even when associated together for certain objects or services. It came into effective existence on July 1, 1933, and the area which it served was 1,986 square miles, of which 1,551 square miles, or roughly 80 per cent., was its exclusive territory. The population of the area was estimated at 9,500,000. It was thought to be the largest metropolitan aggregation of population in the world, the only doubt being in connection with New York, which, if certain portions of New Jersey were added, might then be greater.

London was far from easy to grasp, not because of its size or numbers or riches only, but because often and often again those who had built and enlarged it had had no conception of what they were doing or seeking. Yet it was vitally necessary to try to grasp London as a whole and give it form and order and, as it were maybe foolish ambition to attempt too much, it was perhaps best to proceed piece by piece, or rather function by function; and of the several functions to be explored and defined Transport was one, and of that transport local passenger transport was a major and lively part. That was the sphere of influence and activity of the London Passenger Transport Board. It was thought that the London Passenger Transport Board enjoyed a certain uniqueness of character at the moment which made its study of use and advantage. "Yet even the London Passenger Transport Board is not without its flaws," declared the speaker. "The suburban services of the main line railways, representing 1,023 miles of route, running 273 million car miles, and carrying in whole or in part 547 million passengers, are still dispersed in the hands of four amalgamated companies. True, there is a standing joint committee of the Board and the four companies, to consider their mutual interests and to endeavour to settle any conflict that may arise between those interests. Yet that is not the same as a welding of those interests into one. For the main line railways, the suburban traffic of London is a minor element in their traffic at large, except perhaps in the case of the Southern Railway, and a conflict of this minor element with the major element is not always escapable. Thus a strain or twist creeps into the organisation, and it is not altogether of one piece as it should be. It becomes dependent upon good will. It is there now, but will it always be there? It is impossible not to ask the question. Perfection is a dangerous pursuit, so possibly it is well to accept the flaw with a good grace."

At the moment, however, the task of dealing with local passenger transport as a unity, as a specific function of this metropolis, was proceeding under favourable conditions. The central Government had taken a decisive interest in its fulfilment, and had agreed to support an expenditure of £40,000,000 for the enlargement and improvement of the means employed for its discharge; and that money would be largely expended on measures for the physical co-ordination of such means.

Dealing with the past history of London transport, the lecturer said that the first suburban railway was built in 1836 and ran from Spa-road, Bermondsey, to Greenwich. It was the consequence of the invention of the steam engine. It was the precursor of a network of suburban railways which established new townships out of stagnant villages round about the stations, which sent their working population daily into and out of London. In those days those villages were places like Clapham, Brixton, Streatham, Balham, Tooting—places which had become almost indiscernible, yet when closely examined still revealed to-day traces of their village character and independence. They persisted to-day in the outer spaces as places like Feltham, Ashford, Bedfont, Yiewsley—soon maybe to suffer submergence like their prototypes. There was still a development by means of growing cells round about a railway station nucleus to constitute some organism that was doomed never to be independent—at best a satellite, at worst a parasite.

The horse 'bus was first organised as a means of transport in 1829, and soon began to fill up the interstices of the nucleated railway development, by occupying all the main roads within a range of four miles from the centre. In those days places like Richmond or Hampstead were the great fresh air holiday and pleasure resorts. The horse 'bus solidified the inner suburbs and settled the core of London—a core about 8 miles across, but steadily growing until it corresponded closely to London County.

The underground railway system had commenced as a girdle of shallow railways in 1863, but had hardly differentiated itself from the general suburban railway system until, with the coming of electric traction, the deep-level railways in tube construction were built, beginning in 1890. Then, passing through various phases of expansion, there began an alternative system of railways, with distinct characteristics both of service and fare, stretching out to distances of twelve miles or so from the centre and stimulating the building of houses, so that the effect of this superimposition of one railway system on another was bound to be the complete occupation of land that was not definitely secured against exploitation within this twelve-mile zone. So the solid core of London was enlarged maybe more than was healthy or advantageous, and tended to stretch to a bulk twenty-five miles across, corresponding closely to the Metropolitan Police district. Electric traction had, in turn, come to the aid of the main line suburban railway system, and by its greater efficiency opened up a still wider field for suburban growth, in colonies of houses round stations ever farther and farther out up to distances of twenty-five to thirty miles from the centre; so that the immediate sphere of influence of London was now an area of about fifty to sixty miles across, corresponding fairly closely to the London Passenger Transport area.

The Country Bus and Ribbon Development.

The internal combustion motor ousted the horse in the years 1906 to 1911, and the motor bus and coach now covered all roads of any traffic significance throughout the London Passenger Transport area, and even beyond. The effective range of the express services by coach compared nearly with that of the electrified railway suburban services. These services had occasioned a fresh ribbon development along the main roads leading out from London, which had been condemned indiscriminately because it was misunderstood. The policy of constructing a new system of arterial roads dated from 1920. These roads opened up entirely unspoilt country. They commenced almost houseless, and their beribbonment was therefore conspicuous and discouraging. The fault was not so much with the development itself as with its extravagant and wasteful shape, owing to the absence of any real plan.

The motor-car was planting villas sporadically over all the countryside without any regard for a reasonable economy in the employment of land, so that the distinction between town and country around London was almost wholly breaking down. "This is an even worse abuse than beribbonment," declared the lecturer, "but has attracted less contumely and criticism. There are now about 415,000 motor-cars licensed in London and the five Home Counties, or one to every twenty-seven people resident in these areas. All but a small proportion of these motor-cars must operate in and about London. They represent a menace to communal transport. They cause an abuse of street accommodation. They are the main ingredient in congestion, and it is questionable whether London can economically support them, when road widenings may cost up to £1,000,000 per mile and the added space may primarily be used for waiting vehicles."

So it went on, each means of transport creating its own pattern of housing development, one overlying another until all was confusion, creating ever fresh problems with regard to all public-utility services and even with regard to transport itself. All those were patterns calling for wise and careful treatment as parts of the whole called London. Yet, incidentally, there was no organisation able to control or direct those developments to any predetermined end or result. All was accident. Large populations were dumped down in places where transport facilities were inadequate and unsuitable, as, for example, at Becontree, where 115,000 people had been congregated on one housing estate, equivalent to, but never able to be, a fine town in itself, and certainly not designed as a town with the institutions and amenities of a town. Or, for another example, at North Ilford, where a patchwork of housing by enterprising builders had covered over two square miles or more of agricultural land, and brought into being an additional population of about 40,000 requiring services of all sorts. Such developments were analogous to cancerous growths. The cells multiplied without any proper organic framework or pattern, without differentiation of function, without the discipline of any control. As a consequence, vast sums of money, more than would ever be wanted under a planned expansion, must now be sunk in a scarcely remunerative enlargement of the transport facilities, pointing to the conclusion that with transport unified and co-ordinated there would still be no acceptable solution of the Metropolis, unless the unification of the other essential functions kept equal pace.

Unluckily, traffic considerations were partially subordinated to other considerations which still retained elements of competition. Local authorities vied with one another in seeking expansion. Housing programmes had a tendency to settle and concentrate in unexpected areas. A vacant land, vacant because the transport facilities were inadequate, seemed especially attractive. There could not be a competitive basis to the economic and intelligent planning of a metropolis. The principle that competition was bad was now accepted and applied to transport. How long must London wait for its acceptance and application to the other functions of a healthy growing organism. There was urgent need for parallel treatment if the jumble of glass in the kaleidoscope was to take on those lovely and amazing patterns that were so much admired.

It was not surprising, therefore, to find that much argument and dispute had been awakened by the programme of works in respect of which the Government was to assist in the raising of £40,000,000. Districts not included in the scope of the works were clamorous for an enlargement of the pro-

gramme. Even those to be served were eager for a more generous treatment. In transport there was never satisfaction. There was always something more required. Yet the expenditure of £40,000,000 in five years was an enormous undertaking if it was to be well spent. The mere labour of devising and executing the works was prodigious and must absorb all the persons skilled in them for the period. When the works were completed and opened for traffic, they would demand an additional annual 120 millions of passengers for their support, and as an immediate consequence an additional population of 750,000 persons. Where were these passengers and people to come from and how quickly would they arise? If the years of fructification should be prolonged the programme would be a burden upon the transport system as it now existed. Present passengers would have to bear this burden until the future passengers came in to relieve them. How important, therefore, was the initial choice and planning of the programme. Only those expert in the study of transport developments and tendencies could fairly or reasonably gauge the prospects of this or that work and the priority which they should enjoy in a considered programme. A miscalculation had the effect of retarding or preventing a continuous programme and of calling for a greater patience than that which some must have if any ordered programme was to be pursued at all.

HOUSING AND REHOUSING

A LECTURE on this subject was read before the Sheffield, South Yorkshire and District Society of Architects and Surveyors by Mr. L. H. Keay, O.B.E., M.Arch.(L'pool), F.R.I.B.A., recently. Mr. J. Mansell Jenkinson, F.R.I.B.A., was in the chair.

It was difficult, commenced Mr. Keay, to speak of the subject of housing without raising matters which appeared to be regarded as controversial. In the Society's district, he understood, a plea had been made recently for the limitation of officialism in architecture. "At a time when Parliament has seen fit to add to the housing responsibilities of local authorities," he declared, "such an expression appears to be ill-timed. It is also unfortunate that a small section of the architectural press should have made comparisons recently between the work carried out by architects in private practice and those holding official appointments. It would be still more unfortunate if, forgetting our common allegiance, any of us sought to influence the R.I.B.A. to favour the interests of one section of its members whilst ignoring the rights of another."

But to return to the subject of the paper, since the war the local authorities of the country had been called upon to deal successively with distinct phases of the housing problem. Firstly, by the provision of houses to overcome the accumulated shortage; secondly, the clearance of the slums; and, finally, the relief of overcrowding. The manner in which the first obligation was discharged under the first post-war Act of 1919 was well known to everyone. The employment of qualified architects and the supervision by a competent staff at the Ministry of Health were factors which operated favourably towards a successful solution of the first phase of the housing problem. With less supervision at the Ministry the local authorities continued their work under the successive Acts of 1923 and 1924, until, in 1932, with falling costs and cheaper money, steps were taken to encourage again private enterprise to build small houses for the workers, and the financial assistance provided for local authorities under the Act of 1924 was withdrawn by the short Act passed early in 1933. Under this Act it was anticipated that the building of a sufficient number of small houses would be made possible by utilising the funds of the Building Societies. That the measure was only partially successful was evident by the fact that many local authorities were to-day building "for those whose needs are greatest" without financial assistance from the Exchequer.

The Attack on the Slums.

But the termination of the subsidy under the Act of 1933 did not free the local authorities from their housing responsibilities. By the celebrated Circular No. 1331, issued from the Ministry of Health in April, 1933, the need for a more energetic attack on the slums was urged, and before the end of that year all the great local authorities had submitted schemes covering a period of five years or more. Once again the spirit of controversy raised its head and some housing authorities declared against any rebuilding on the cleared sites of insanitary property, advocating as an alternative the accommodation of the displaced families in newly developed estates on the outskirts of the towns. Such action was not lacking in Parliamentary support, for the powers to redevelop were obviously only included in the Slum Clearance Act of 1930 as an afterthought or as a remote alternative.

Those called upon to deal with the housing problem of our great industrial cities realised that the redevelopment of the central areas could only be wrong if it was restricted to the replanning of the small areas of land previously covered by the insanitary properties, but that if sufficient scope were afforded a satisfactory solution could be found for the proper housing of the town dwellers. "To those holding this opinion the new Act of 1935 has brought much encouragement," said the lecturer, "for, in addition to the powers for the relief and abatement of overcrowding—conditions which create slums—it enables local authorities to acquire compulsorily not only insanitary properties and other lands to render the areas convenient in regard to shape and size, but also any properties in any district in which it is considered necessary to provide for the housing of the workers. These powers are, of course, subject to certain conditions obtaining in the district.

"The normal method of redevelopment under this last Housing Act is by the erection of flats, and so once again the 'air' is busy with debates on the relative advantages of the cottage and the flat. Coming from the city which erected the first block of municipal flats in the country in 1869, and has continued, and is continuing, to provide that form of housing accommodation in the central area, and since the war has also built 25,688 cottages on the outskirts of the city, it is perhaps only natural that I refuse to acknowledge that the building of flats or cottages should be a matter of controversy at all. Each has its appropriate place in a great housing undertaking, dependent upon local conditions and necessities." He would show examples of recent Liverpool schemes when his audience could judge for themselves whether they merited the description of "stalls in a wholesale stable," or whether the President of a well-known Yorkshire Building Society was right in acclaiming that independence and self-respect could not be created in "community houses wherein the people of this nation would be herded, layer upon layer, subject at times to the prying or the overseeing eye of officialdom."

Housing Work at Liverpool.

"I do not suggest for one moment," said the lecturer, "that the methods employed in Liverpool are suitable for universal adoption. Each town has its particular and peculiar problem, and I readily admit that I am still learning. Whilst I hope that the housing estates on the outskirts of the city may be judged as satisfactory architecturally, I realise that socially they have many deficiencies. Segregation of one class has been unavoidable in carrying out successive Acts of Parliament and Ministerial instructions, and enlightened local authorities must not be blamed for conditions which they are unable to alter."

In connection with the city's slum clearance programme, 10,690 flats were to be erected in the inner areas, and a further 5,000 cottages on estates on the outskirts, but the full measure of the problem was not yet known. With the added powers of the Act of 1935 the whole problem had been changed and attention was being given to great schemes of redevelopment as opposed to rebuilding on a large number of isolated areas which gave little opportunity to put into practice the possibilities of town planning. So far three schemes had been considered and the first steps had been taken in respect to an area about 58 acres in extent. The flats already erected in connection with slum clearance schemes, and those to be erected in the redevelopment schemes, would follow the two standard plans which had been adopted for both balcony and enclosed staircase access. The buildings were of brick construction with reinforced concrete floors and supporting pillars and beams, and were fireproof. They were usually five stories in height, without lifts, and at a density of not more than 240 habitable rooms to the acre. Windows were of steel or wood, or a combination of steel and wood. Doors in more recent schemes were flush and fixed to steel frames. Picture rails were omitted and cement or tile skirtings were used. Roofs were pitched and covered with tiles, or partly flat and partly pitched. The flats of the various types were as a rule designed in the following proportions: Bed-living-room, 5 per cent.; one-bedroom, 20 per cent.; two-bedroom, 30 per cent.; three-bedroom 35 per cent.; and four-bedroom, 10 per cent. Provision was made in the various blocks of flats for adequate open space, gardens and playgrounds for the children, with gymnastic apparatus. Where necessary meal centres and clinics formed part of the general building schemes.

THE INSTITUTE OF FUEL

IN his presidential address to the Institute of Fuel, Sir John Cadman, G.C.M.G., D.Sc., spoke on British Fuel Policy. Great Britain, he said, had two primary fuels—coal and oil. What was the position in our national economy of those fuels and how could they best aid British industry?

Since 1913 output of British coal had fallen 66 million tons from 287 million tons to 221 million tons. The causes of the decline were various—increased dependence by foreign countries on their own coal, greater competition for the export market, the use of oil in ocean-going vessels, and fuel economy throughout the world. In contrast with coal, oil consumption in Great Britain has risen 6.6 million tons. Total imports in 1913 were 1.8 million tons, in 1934 they were 8.4 million tons. Contemporaneously, all forms of oil-consuming vehicles and plant had greatly increased in numbers. The construction, operation and maintenance of motor vehicles employed 1,257,000 individuals. Post-war policy towards coal did not remedy any fundamental causes of trouble until 1930, when the Coal Mines Act was passed. This Act facilitated re-organisation of the coal industry, and although it had not been made full use of, it had been of great value.

What, asked the speaker, ought to be our policy towards fuel? He thought that the policy should be to give British manufacturers every advantage that could be obtained from ample supplies of cheap fuel. A principal feature in applying that policy should be readjustment of the coal industry to take account of reduced demand. The coat must be cut to suit the cloth, which was no longer plentiful. Reorganisation of the coal industry should eliminate the inefficient, reduce competition among the various units and introduce better selling methods. The coal industry would not permanently benefit from preferences or subsidies. To restrict the use of oil could not materially aid coal. British coal production had fallen 66 million tons in 21 years, while oil consumption had risen 6.6 million tons.

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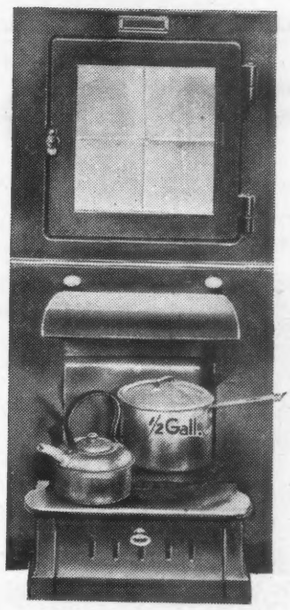

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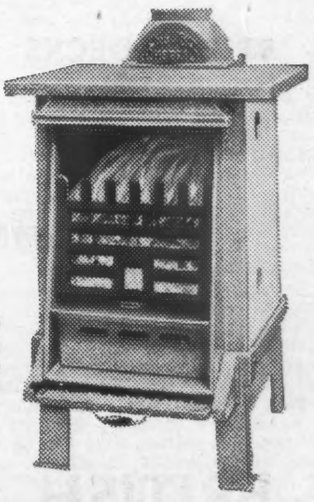

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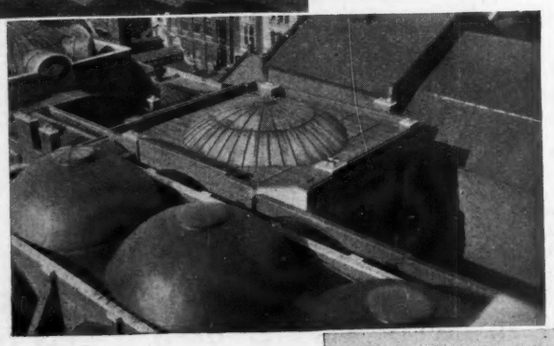

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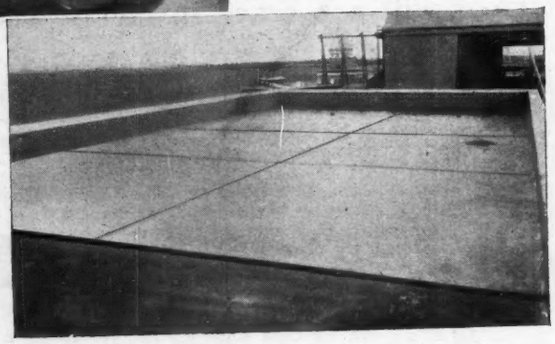

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THE BALANCED SYSTEM OF VENTILATION

A PAPER on "Ventilation" was read by Mr. C. B. Jackson, F.I.S.E., M.I.H.V.E., at a recent sessional meeting of the Institution of Sanitary Engineers. From this we extract the author's interesting description of the balanced system of ventilation.

Ventilation, said the lecturer, must not be confused with air conditioning. The former could be generally defined as a maintenance of a sufficient, clean air supply within a confined space for the health and comfort of the occupants, and efficient ventilation consisted in supplying clean fresh air at a constant rate and extracting foul air at the same rate as soon as the purity was affected. Air conditioning, on the other hand, affected the humidity and temperature of the air supplied. During the past two summers we had heard a great deal about the faulty ventilation of buildings, particularly stores, whereas actually the ventilation was very efficient, but by extracting the comparatively cool air from the building and introducing fresh air, which had probably been warmed indirectly to several degrees over the inside air by the sun, one was apt to think that the ventilating plant was not efficient. Actually what should be installed with the ventilating plant was an air conditioning plant, so that the temperature and humidity could be varied to suit the conditions. He was now concerned purely with the ventilation, that was, the extraction of foul air and the introduction of fresh air, which was used as the medium for ventilation

The systems of ventilation came definitely under one of two headings, *i.e.*, natural means, or mechanical means. The natural system was dependent on ordinary physical conditions, whereas in the mechanical method the movement of air was obtained by definite mechanical means. When considering mechanical ventilation, one had to consider three methods. The first was the plenum system, or induction of air only by mechanical means; the second was the extract system or the extraction only of air by mechanical means; and the third was the balanced system which was a combination of the two previous systems.

The Balanced System.

The balanced system was the one which he always favoured and, provided he was given a free hand, he would always instal it in any public buildings, stores, and premises where the ventilation was of some importance. Fresh air was inducted into the building by mechanical means, and foul air extracted from the building by mechanical means. It was usual for a larger quantity of air to be injected than that removed by means of extraction, in order to ensure that the air in the ventilated space had a slightly higher pressure than the outside air, thus preventing cold draughts or the entry of foul odours and foggy air.

The balanced system might be designed on the upward or the downward system. With the former system, the fresh air was introduced at low level, and the vitiated air was extracted at or near ceiling level. In the downward system the reverse procedure was adopted, *i.e.*, the fresh air was introduced at ceiling level and the vitiated air was extracted at or near floor level. Provided the system were well designed and operated perfectly, good results might be obtained with either.

It might be of interest to describe the balanced system which he had installed in a considerable number of branches of a multiple store. The method was really a combination of heating and ventilation. With the majority of stores, the layout generally consisted of the whole of the ground floor being utilised as a sales floor, and the first floor as stockroom and offices, but he would only describe the system of ventilation for the sales floor. The roof incidentally was usually flat.

The extract system was designed to give approximately six air changes on the sales floor per hour, and either consisted of an extract system or of three or four extract units. These units were formed with a grille on the ceiling above the sales floor, a vertical duct being carried through the stockroom floor on to the flat roof where it was fitted into a small housing. The outflow of air from the sales floor through the duct was maintained by the operation of a direct coupled propeller fan, either 24. in or 30 in. diameter. There was practically no resistance in the ductwork; and the propeller fan, provided the housing was fitted in such a manner as to offset outside wind resistance, would maintain a very good efficiency.

These units were made more or less standard and werecheap inmanufacture and installation, both from the engineer's, point of view and the builder's. Naturally the most important thing to be guarded against, was the possibility of weather leaking in through the ductwork or housing, and provision was made to carry away the condense out of the vitiated air once it struck the cold surroundings of the housing.

The fresh air inlet system was designed generally on rather similar lines but it was more complicated, for in addition to the inlet ductwork a unit heater was fitted at the point where the ductwork exhausted itself into the room. The unit heater consisted of a battery of coils which were heated by steam, hot water or electricity, and behind these coils was a small direct-coupled propeller fan and motor. On the face of the unit there was a grille or louvres. The fan forced the air through the coils into the room, and the initial temperature of the air as it left the unit heater would be anything from 70 deg. F. to 110 deg. F. with hot water as the heating medium.

In the design of the system now being considered, the fresh air inlet duct was connected to the inlet of the unit heater, so that in the winter all the fresh air was warmed before being delivered into the stores. An auxiliary to this fresh air inlet was a series of dampers and recirculating ductwork, so that the air in the building could be recirculated through the heater without the addition of fresh air.

For all large ventilating schemes such as would be installed in theatres, cinemas, public halls, large stores and showrooms, the balanced system was the one usually employed, as it might be used in conjunction with heaters for warming the air, filters and air washers for cleaning and purifying the air, and with the latter might be incorporated methods for controlling the humidity of the air; also, where necessary, the air might be successfully cooled.

He was a great believer in filtering of air to be inducted into a building for ventilating purposes. This air was usually charged with dust and it was desirable, not only for the occupants of the building, but also for the safeguarding of stock in stores, that the air should be purified to some extent. There were three main types of filters, the dry filter, the viscous filter, and the wet type of filter or air washer.

Dry filters were constructed from muslin. canvas, cheese-cloth and similar material. The material might be stretched on wood or metal frames fixed in the duct system, and the air was caused to flow through at low velocity. The frames were usually fitted in zigzag formation to obtain as large an area as possible, and to economise in space. This type of filter was very efficient when clean, but its efficiency decreased as dust was deposited, and unless frequently cleaned, the resistance to the passage of air was considerably increased.

Viscous filters were of many types, but they were all designed on the same principle. The filter consisted of units each approximately 20 inches square, complete with metal frames, so designed that they might be easily built into the most convenient formation. The filtering medium varied in different makes of filters, one consisting of sheets of expanded metal of small mesh fitted one behind the other, another of small ferrules held in place by sheets of expanded metal, yet another of zig-zag plates; the medium in each case being fitted inside a frame equipped with handles. The filter was immersed in a tank of viscous oil having a high flash point, drained and fitted into the metal framework. The air passing through the filter impinged on the sticky surface, the dust in the air adhered to the oil, and the clean air passed on to the building. When the filter unit became clogged with dust, it was removed, washed in hot soda water, rinsed and allowed to dry before being again treated with oil. It was usual to have spare units to replace those being cleaned and re-charged with oil. Recently new types of viscous filters had been manufactured, incorporating self-cleaning and self-charging features.

The wet type of filter or air washer, as it was most commonly called, consisted usually of a large galvanised steel water-tight box, mounted above a shallow base tank. A supply pipe was connected to the tank, the water level being kept constant by a ball valve, and provision was made for overflowing and emptying. A pipe connection from the tank was taken to a filter, and from the filter a connection was made to the suction side of a centrifugal pump. The discharge side of the pump was connected to a header which supplied water through distributing pipes to spray nozzles, the whole being fitted inside the water-tight box. A supply of water was sometimes delivered by the pump to a flooding pipe fitted above the scrubber plates. When in operation, the pump continuously circulated the water from the base tank through the spray nozzles and flooding pipe, whence it fell into the tank and thence back to the pump. Beyond the spray nozzles in the water-tight box, vertical zig-zag plates, closely spaced, were fitted, and these were known as the scrubber plates. Beyond these plates, there was a second set of plates, less closely spaced, these being known as the eliminator plates. One end of the water-tight box was connected to the fresh air inlet duct, and the opposite end was connected to the fan. The box or body of washer was usually fitted with a glazed water-tight door, and inside the body a water-tight light fitting was fixed, so that the operation of the washer might be observed.

The air to be dealt with first entered the spray chamber—the portion of the washer in which the spray nozzles were fixed—and thoroughly mixed with the water, which the spray nozzles turned into a fine mist. Each particle of dust became the nucleus of a particle of moisture, and the moving air carried the particles of moisture towards the scrubber plates, where they were deposited and trickled down into the base tank. The air then passed on, and any particles of moisture not intercepted by the scrubber plates were caught by the eliminator plates, the edges of which were usually furnished with a gutter on the further side, and these effectively removed the last particles of moisture. The water in the base tank passed through the filter and the dust particles were thus separated from the water.

Wet filters were very effective for removing impurities from air, provided there was not a large amount of soot present, as it was found that the water did not adhere to the soot particles and a large percentage of the soot might be carried through the washer and enter the duct system. Where the air was liable to contain a large proportion of carbon, as occurred in large manufacturing towns, it was advisable to pass the air through a viscous filter before introducing it into the air washer. It would be appreciated that the humidity of the air would be affected by passing through the spray chamber, also there would be a variation in temperature, and the wet filter or air washer was thus an important factor in that branch of ventilation known as air conditioning. Where odours were present in the air, it was often found that an air washer would reduce them considerably, and in some instances they were entirely removed.

Summer Cooling: An Experiment.

The lecturer then mentioned an experiment which he had been "trying out" in a large store during the past summer. It was suggested to him, he was afraid with some levity, that as the unit heaters were used for warming the place in the winter, why could they not be used for cooling during the summer? After a lot of consideration, although he thought the suggestion might have some practical possibilities, he was rather worried as to what amount of condensate would appear, and he therefore strongly advised his clients not to waste any money, barring what was necessary for experimental purposes, until they could find out exactly what would happen. He would not describe the methods that were adopted, but they did get the temperature of the water in the central heating system down to 50 deg. F. when the outside temperature in the street was 73 deg. F., and this was maintained for several days. The unit heaters were kept in constant operation, and the resultant average temperature of the air in the store was between 2 deg. F. and 4 deg. F. below the outside temperature. This might not appear to be very much, but a drop of one or two degrees when going from outside air into a building conveyed a feeling of coolness and pleasant comfort. Whilst the experiment was in operation he visited a similar store within 200 yards of where they were carrying out their experiment, and found that the temperature inside was 78 deg. F. —in other words, a matter of 8 deg. F. over the store in which he was interested.

Little or no condense formed on the unit heaters, but undoubtedly that was due to the low percentage of humidity in the outside atmosphere. This was a question which was definitely to be handled in the design and erection of all cooling plants.

WEST YORKSHIRE SOCIETY OF ARCHITECTS

"EASEMENTS OF LIGHT."

A lantern lecture on "Easements of Light" was given by Mr. John Swarbrick on December 19, before the Bradford Branch of the West Yorkshire Society of Architects, Alderman Wm. Illingworth, F.R.I.B.A., chairman of the Branch, presiding. The methods of measuring daylight and of preparing daylight plans were explained. Mr. Swarbrick commenced his lecture by referring to the antiquity of the Law of Light. This, he stated, dated from the Roman period, and he showed a lantern slide of an inscription, relating to the payment of compensation in respect of an infringement of light, found amongst the ruins of the Temple of Apollo, at Pompeii. He also explained that the English Law of Light is administered throughout the British Empire, with some slight modifications in certain Dominions and Colonies. An illustration of the calculating diagrams used by Professor Robert Kerr in 1865 was exhibited, together with another slide showing the method of angles, as used in the frequently cited case of Colls *v.* The Home and Colonial Stores.

The lecturer stated that the main difficulty in using the method of drawing angles from window sills, to show the extent of obstruction, arose owing to the opposite skyline very rarely being uniform, parallel with the dominant tenement and continuous in both directions. Often, the skyline was most irregular, and sections to show all the variations would be so numerous as to be confusing. Moreover, sections showing angles of obstruction did not make it possible to determine the quantum of light lost. The modern method of measuring light at table height, on the horizontal plane, and of making due allowance for the Cosine Law of Light was explained, and it was pointed out that Professor Kerr's method was entirely wrong in principle, because the Professor only endeavoured to measure the light that fell upon the vertical plane of a window, and not on the horizontal plane of a table.

The first published plans showing illumination were those of Henri Maréchal, which appeared in 1894, in a book entitled—"L'Eclairage à Paris." With the assistance of portable daylight photometers, it became possible to plot corresponding contours, representing natural illumination. Maréchal's plans related to the artificial illumination of streets. One of the earliest difficulties experienced in using photometers was due to the external light changing continually in intensity. The result was that it was speedily discovered that the only way to plot natural illumination would be in the form of percentages of the external illumination. Such percentages were called either "Daylight Factors" or "Sill Ratios." The "Daylight Factor" was a percentage of the light received on the top of a roof, with an unobstructed horizon, whereas the "Sill Ratio" was a percentage of light received on a window sill, with an unobstructed horizon. Naturally, the window sill received half the amount of light reaching the top of a roof, at the same time, when the horizon in each case was unobstructed.

The standard of light that was generally regarded as inadequate was an illumination of one foot-candle or the intensity of light that could be received at a distance of one foot from a standard candle. In cases in Court, the practice had been for many years to test light conditions on the basis of an average cloudy day, in the least favourable months of the year, namely: winter, late autumn and early spring. The average illumination at that time of the year had been taken as 500 foot-candles, measured at the top of an unobstructed roof. This standard was not by any means the average illumination for the entire year. The "Daylight Factor," at the point at which there would be inadequacy with a standard of one foot-candle, was therefore 1/500th, or 0.2 per cent. The corresponding "Sill Ratio" was 1/250th, or 0.4 per cent., as the maximum amount of light that would reach a window sill on the average dull day referred to would be 250 foot-candles. This was the standard adopted in the case of Charles Semon and Co., Ltd., *v.* The Bradford Corporation, which was heard by Mr. Justice Eve in 1922.

A serious misunderstanding had arisen in the Colonies and British Dominions, owing to the "Daylight Factor" of 0.2 per cent. and the corresponding "Sill Ratio" of 0.4 per cent. being referred to in Government publications as if they were universal standards that could be adopted anywhere from the North Pole to the Equator. That was an absurdity, as the average illumination, during the least favourable months of the year, varied from place to place, according to the altitude of the sun, during the periods in question. The reason why the average illumination in the summer in this country was better than the average illumination during the winter was because the altitude of the sun varied so considerably. In London the altitude of the sun in the middle of the day at midsummer was very nearly 62 degrees, whereas on December 21 it was only 15 degrees. He had been consulted regarding Right of Light disputes in India and in the British Colonies, and he discovered some time ago that, in the case of countries nearer to the Equator, the average sky brightness of 500 foot-candles for the less favourable months of the year was of no practical use whatever. He did not complain of its use in this country, but he was convinced that it was wholly useless in the case of cities such as Bombay and other places nearer to the Equator. When he gave evidence last year in a Right of Light case at Gibraltar, he assumed that the average illumination there, during late autumn, winter and early spring, should be taken as 1,500 foot-candles, or three times as much as in England. The effect of this was that at the point at which, in England, an illumination of one foot-candle would be received, on an average dull day, an intensity of three foot-candles would be received in Gibraltar.

This obvious variation of average sky brightness in various parts of the world was not generally understood, and he expressed the view that in Government publications it should be made perfectly clear that the standard referred to was one that related to England, and not necessarily to all other parts of the British Empire in which the same law of light was administered. Calculating sheets for determining the amount of light geometrically were exhibited, and their use explained, but the lecturer also explained the use and applications of the photo-theodolite, which he patented, and which had now been used in a considerable number of cases in Court. It was explained how the photo-theodolite had been designed, so that any number of photographs of windows in the vertical plane might be taken, together with any number of toplights, but so that the light recorded on each of the photographs would be the percentage, in each case, received at the exact spot at which the instrument had been set. In this way, it was possible to measure the amount of light received at any given spot from any number of sources, however they might be placed. Examples of both the "Co-ordinate" grilles of angles, and of the "Daylight Factor" grilles were illustrated. The "Co-ordinate" grilles of angles corresponded, said the lecturer, to those on an ordinary globe, and represented angles of azimuth, laterally, as well as angles of altitude. The "Daylight Factor" grilles, on the other hand, represented units of light. By counting up the number of units in the sky area, it was possible to determine immediately, by inspection, the exact percentage of light received, and so to locate the precise spots at which the contours of inadequacy would fall. In addition to obtaining data optically by means of this instrument, it was also possible to obtain records on photographic plates, and prints of negatives so exposed had been used in considerable numbers of cases in Court. By using "Co-ordinate" grilles of angles, instead of "Daylight Factor" grilles, it was possible, by means of geometry, to reconstruct on photographs the positions of old buildings that had disappeared and of new buildings that it was proposed to erect.

A vote of thanks to the lecturer was moved by Mr. Victor Bain, F.R.I.B.A., President of the West Yorkshire Society, and seconded by Mr. Norman Culley, F.R.I.B.A., of Huddersfield.

"Rural Industries."

The winter number of "Rural Industries" contains various articles in which instruction and practical advice are given to the blacksmith, the potter and the designer in woodwork. Instruction on the making of blockings, illustrated by a full page of clear drawings, is given in an article on ornamental ironwork, and the seventh of the series of articles on oxy-acetylene welding describes the construction of a welding table and a portable trolley to accommodate the welding plant. Potters wishing to make glazed ware are given advice on the building of a small kiln, and drawings of four kilns suitable for this purpose are supplied, together with directions as to their construction and use. Attention is drawn to the valuable service afforded by the National Central Library to readers of non-fiction books. Details of these are set down in full, while space is also devoted to editorial notes, reviews of recent publications, news of the progress of rural industries work in the counties, and an index of the contents of the four issues of the magazine published in 1935. This issue well maintains the standard of this useful publication, which is published quarterly at the offices of the Rural Industries Bureau, 6, Bayley-street, London, W.C.1, and the terms of subscription are 1s. per annum post free.

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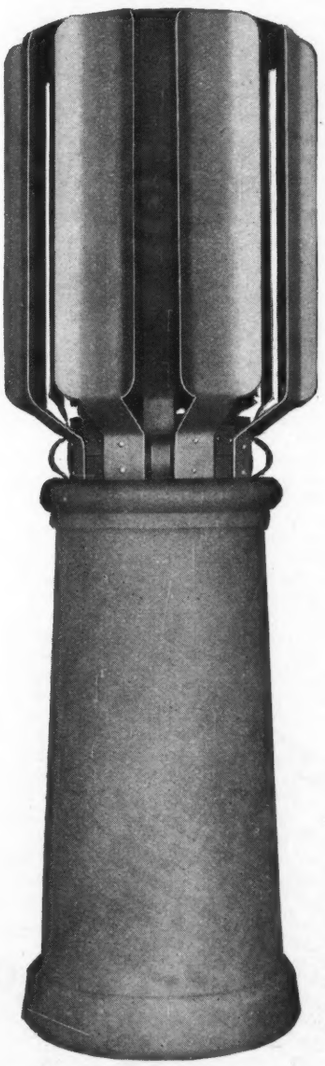

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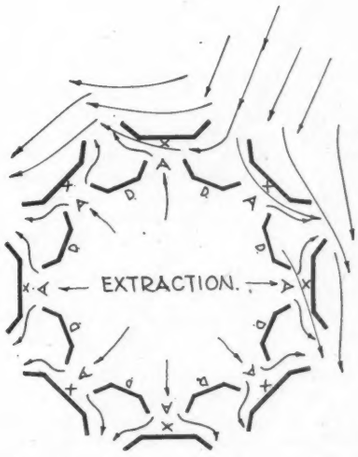

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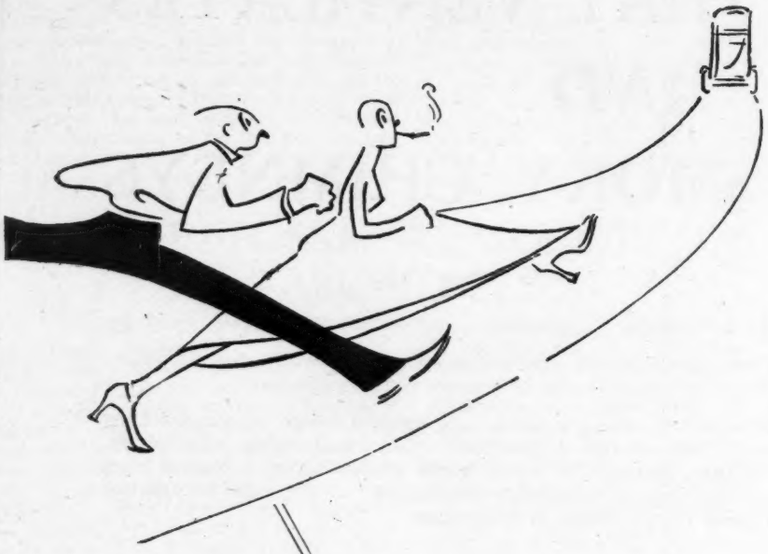

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KING'S BENCH DIVISION.

Before MR. JUSTICE HORRIDGE.

LIABILITY FOR ROAD CHARGES. ACTION AGAINST BUILDERS AND CONTRACTORS.

Parker v. P. Gallagher, Ltd.

This was an action by Mr. Arthur John Parker, of 5, The Chase, Romford, Essex, against Messrs. P. Gallagher, Ltd., builders and contractors, of 192, North-street, Romford, for a declaration that he was entitled to be indemnified by the defendants in respect of any assessment he might have to meet for road charges on premises known as "Portmeor," No. 5, The Chase, Marshall's Park, Romford. The plaintiff also claimed a declaration that the defendants were liable to make good any loss or damages incurred by him by reason of any failure of the defendants to hold him harmless and indemnified in respect of the road charges upon the said premises.

The plaintiff bought the premises from the defendants for £900, which included the cost of the conveyance, dated February 13, 1929, and his case was that it was a condition of such purchase that no road charges were to become payable by him upon the premises; but in breach of the agreement the defendants, by letters dated April 23, May 8 and 24, 1935, had refused to hold him harmless or indemnified in respect of the road charges incurred, and contended that they were under no liability so to do.

The defendants pleaded a denial of any such agreement as the plaintiff alleged, and they further relied upon section 40 of the Law of Property Act, 1925, as a defence to the action.

Mr. Robert Fortune appeared for the plaintiff, and Mr. G. O. Slade for the defendants.

At the conclusion of the evidence and the addresses of counsel, his lordship said it was perfectly obvious what had happened in this case. The defendants had appointed Messrs. Hilbery, Chaplin and Co. as their agents to find purchasers for their houses, with instructions that no road charges should be made. While the agents were so authorised, they circularised the plaintiff and others to the effect that there would be no road charges. It was true that on April 30 the defendants wrote to the agents that they must not any longer advertise that the houses were for sale with no road charges. In the circumstances, he held that the plaintiff was entitled to the declaration he asked for, with costs.

Mr. Fortune said there were a large number of other houses on the estate dependent on the decision which had been arrived at by the judge.

KING'S BENCH DIVISIONAL COURT.

Before the LORD CHIEF JUSTICE and MR. JUSTICE GODDARD.

THE SCHEME TO BUILD ON PART OF HACKNEY MARSH.

The Court, on the application of Sir Patrick Hastings, K.C., on behalf of objectors to the London County Council's proposal to take over a part of Hackney Marsh for the purpose of its East End redevelopment scheme, granted a rule *nisi* directed to the Minister of Health prohibiting any part of the Marsh being used for housing.

Sir Patrick said that the land, in 1893, was in the possession of Lord Amherst, and the local authority acquired it by a contract with Lord Amherst, who sold his rights, and another contract with the Commoners, who sold theirs. Those matters were dependent upon the purchase by the local authority and by local subscription. The matter went through satisfactorily and was incorporated in a special Act of Parliament—the London Open Spaces Act, 1893. The scheme under the Act was to procure the land as an open space. Section 12 of the Act empowered the Council to exchange any part of the Hackney Marshes for any other land adjoining which the Council might think desirable to substitute for the before-mentioned land; and the Housing Act, 1925, contained certain powers under which the Ministry of Health and the L.C.C. now purported to act. On July 31, 1934, the L.C.C. passed a resolution to acquire about 30 acres of the Marsh and to give in exchange about 50 acres of the Chigwell housing site, some seven miles away. That the applicants for the rule protested against, and then it was stated that there would be a public inquiry on December 18. There was, said Sir Patrick, a *prima facie* case that the action taken under the Act of 1925 was erroneous, and he asked the Court to grant a rule *nisi* prohibiting the Minister from doing three things :—

(1) Giving his consent to the appropriation of the land.
(2) Giving a certificate approving the exchange.
(3) Holding a local public inquiry

As before stated, the Court granted a rule *nisi* as asked.

KING'S BENCH DIVISION.

Before MR. JUSTICE PORTER.

ARCHITECTS' CLAIM FOR FEES.

Beard and Bennett v. Kanssen.

This was an action brought by Messrs. Beard and Bennett, architects and surveyors, of 101, Baker-street, W., to recover from the defendant, Mr. T. Kanssen, of Lancaster-place, Strand, W.C., £1,150 as the balance of fees plaintiffs alleged to be due to them for professional services rendered.

The plaintiffs' case, briefly stated, was that in October, 1933, they got into touch with the defendant, who was interested in the proposed erection of a cinema theatre, to be called the "Eldorado," in High-street, Putney, S.W., and that an arrangement was come to between them under which plaintiffs measured up and prepared plans, etc., for the building, and for which they had received a payment of £500 only.

Mr. Kanssen pleaded a denial of personal liability, and alleged that he, in dealing with the plaintiffs, had acted for a company to be formed, and of which fact the plaintiffs were aware.

After hearing the evidence, his lordship, in giving judgment, said that the plaintiffs sued in respect of fees they alleged to be due to them under the R.I.B.A. scale for the preparation of plans, etc., and supervising the building of the cinema at Putney. The defendant came over to this country, backed to some extent by a Belgian company, with the object of building and running the theatre. It was known to all the parties that a company was to be formed, but he (the judge) did not think that the plaintiffs had ever agreed to the liability for their fees being transferred from the defendant to the company. He accordingly gave judgment for the plaintiffs for the amount claimed, with costs.

Mr. R. M. Wilson appeared for the plaintiffs, and Mr. D. B. Stenham for the defendant.

COURT OF APPEAL.

Before LORDS JUSTICES GREER, SLESSER and SCOTT.

THE RATING OF CLOSED COTTON MILLS.

Townley Mill Co. (1919), Ltd., v. Assessment Committee of Oldham.

In this case, which raised a question of considerable importance as to the proper assessment for rates under Section 24 of the Rating and Valuation Act, 1925, the Assessment Committee for the assessment area of Oldham appealed from the judgment of a King's Bench Divisional Court, consisting of the Lord Chief Justice and Justices Hawke and Lawrence (reported in *The Builder* of August 2, 1935).

The case came before the Divisional Court on the appeal of the Townley Mill Co. (1919), Ltd., whose cotton mill, in consequence of trade depression, had been closed in 1931, from a decision of Quarter Sessions at Lancaster.

The facts were that the mill was erected in 1884, extended in 1905, and closed in 1931. The company owned the freehold of the premises, and when it was closed, all efforts to sell the freehold of the premises or the machinery were unsuccessful, and the only person left on the premises was an engineer, who was in the position of a caretaker. The justices at Quarter Sessions, although finding that the owners had no beneficial occupation of the mill as a cotton mill, found that there was such occupation because the hereditament warehoused the machinery. Apart from the machinery, the only things left on the premises were certain small chattels. The motive machinery, without which the machinery could not operate, had been removed. In these circumstances the company contended that the assessment ought to be reduced to the nominal figure of £7, which represented the value of the chattels left in the mill.

The Divisional Court so held and allowed the appeal of the company.

The Lord Chief Justice, in the course of his judgment in the Court below, said that the Act of 1925 seemed to have been designed manifestly to relieve industrial hereditaments from some of their rates, and for once the legislature had made its meaning plain. It got rid of the old doctrine that the premises were enhanced by the machinery they contained.

Justices Hawke and Lawrence concurred, and the company's appeal was allowed with costs and the assessment ordered to be reduced to the nominal figure of £7, which represented the value of the chattels left in the mill. From this result the Assessment Committee now appealed.

Section 24 of the Act of 1925 is as follows : "(1) For the purpose of the making or revision of valuation lists the following provisions shall have effect with respect to the valuation of any hereditament other than a hereditament the value of which is ascertained by a reference to the accounts, receipts or profits of the undertaking carried on therein : (*a*) all such plant or machinery in or on the hereditament as belongs to any of the classes specified in the third schedule to this Act, *i.e.*, motive plant shall be deemed to be a part of the hereditament; (*b*) subject as aforesaid no account shall be taken of the value of any plant or machinery in or on the hereditament."

Lord Justice Greer, in a long elaborate written judgment allowing the appeal, said that the Rating and Valuation Act, 1925, had no application to the facts of the present case. It was, he said, contended on behalf of the company that they were not in beneficial occupation of the mill, as a mill, and therefore that they were not in rateable occupation of the mill. That contention was not consistent with the authorities extending over a period of half a century, the effect of which was that where premises were occupied by the owners and the occupation thereof was of some benefit, or of some value, to the owner, the premises were liable to be rated. It was clear on the facts that in this case the company, in occupying the mill for the purpose of housing the machinery, was deriving a benefit from the occupation of the premises, and therefore that the premises were rateable. The amount of the valuation for rating purposes would have to be decided by the proper tribunal.

The other members of the Court concurred, and the appeal was accordingly allowed, with costs.

Mr. Monckton, K.C., Mr. Trustram Eve, K.C., and Mr. Bancroft Turner appeared for the appellants, the Assessment Committee; and Mr. Tyldesley Jones, K.C., Mr. T. Eastham, K.C., and Mr. R. W. Leach for the respondents, the Townley Mill Co.

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The lecturer stated that the main difficulty in using the method of drawing angles from window sills, to show the extent of obstruction, arose owing to the opposite skyline very rarely being uniform, parallel with the dominant tenement and continuous in both directions. Often, the skyline was most irregular, and sections to show all the variations would be so numerous as to be confusing. Moreover, sections showing angles of obstruction did not make it possible to determine the quantum of light lost. The modern method of measuring light at table height, on the horizontal plane, and of making due allowance for the Cosine Law of Light was explained, and it was pointed out that Professor Kerr's method was entirely wrong in principle, because the Professor only endeavoured to measure the light that fell upon the vertical plane of a window, and not on the horizontal plane of a table.

The first published plans showing illumination were those of Henri Maréchal, which appeared in 1894, in a book entitled—"L'Eclairage à Paris." With the assistance of portable daylight photometers, it became possible to plot corresponding contours, representing natural illumination. Maréchal's plans related to the artificial illumination of streets. One of the earliest difficulties experienced in using photometers was due to the external light changing continually in intensity. The result was that it was speedily discovered that the only way to plot natural illumination would be in the form of percentages of the external illumination. Such percentages were called either "Daylight Factors" or "Sill Ratios." The "Daylight Factor" was a percentage of the light received on the top of a roof, with an unobstructed horizon, whereas the "Sill Ratio" was a percentage of light received on a window sill, with an unobstructed horizon. Naturally, the window sill received half the amount of light reaching the top of a roof, at the same time, when the horizon in each case was unobstructed.

The standard of light that was generally regarded as inadequate was an illumination of one foot-candle or the intensity of light that could be received at a distance of one foot from a standard candle. In cases in Court, the practice had been for many years to test light conditions on the basis of an average cloudy day, in the least favourable months of the year, namely: winter, late autumn and early spring. The average illumination at that time of the year had been taken as 500 foot-candles, measured at the top of an unobstructed roof. This standard was not by any means the average illumination for the entire year. The "Daylight Factor," at the point at which there would be inadequacy with a standard of one foot-candle, was therefore 1/500th, or 0.2 per cent. The corresponding "Sill Ratio" was 1/250th, or 0.4 per cent., as the maximum amount of light that would reach a window sill on the average dull day referred to would be 250 foot-candles. This was the standard adopted in the case of Charles Semon and Co., Ltd., *v.* The Bradford Corporation, which was heard by Mr. Justice Eve in 1922.

A serious misunderstanding had arisen in the Colonies and British Dominions, owing to the "Daylight Factor" of 0.2 per cent. and the corresponding "Sill Ratio" of 0.4 per cent. being referred to in Government publications as if they were universal standards that could be adopted anywhere from the North Pole to the Equator. That was an absurdity, as the average illumination, during the least favourable months of the year, varied from place to place, according to the altitude of the sun, during the periods in question. The reason why the average illumination in the summer in this country was better than the average illumination during the winter was because the altitude of the sun varied so considerably. In London the altitude of the sun in the middle of the day at midsummer was very nearly 62 degrees, whereas on December 21 it was only 15 degrees. He had been consulted regarding Right of Light disputes in India and in the British Colonies, and he discovered some time ago that, in the case of countries nearer to the Equator, the average sky brightness of 500 foot-candles for the less favourable months of the year was of no practical use whatever. He did not complain of its use in this country, but he was convinced that it was wholly useless in the case of cities such as Bombay and other places nearer to the Equator. When he gave evidence last year in a Right of Light case at Gibraltar, he assumed that the average illumination there, during late autumn, winter and early spring, should be taken as 1,500 foot-candles, or three times as much as in England. The effect of this was that at the point at which, in England, an illumination of one foot-candle would be received, on an average dull day, an intensity of three foot-candles would be received in Gibraltar.

This obvious variation of average sky brightness in various parts of the world was not generally understood, and he expressed the view that in Government publications it should be made perfectly clear that the standard referred to was one that related to England, and not necessarily to all other parts of the British Empire in which the same law of light was administered. Calculating sheets for determining the amount of light geometrically were exhibited, and their use explained, but the lecturer also explained the use and applications of the photo-theodolite, which he patented, and which had now been used in a considerable number of cases in Court. It was explained how the photo-theodolite had been designed, so that any number of photographs of windows in the vertical plane might be taken, together with any number of toplights, but so that the light recorded on each of the photographs would be the percentage, in each case, received at the exact spot at which the instrument had been set. In this way, it was possible to measure the amount of light received at any given spot from any number of sources, however they might be placed. Examples of both the "Co-ordinate" grilles of angles, and of the "Daylight Factor" grilles were illustrated. The "Co-ordinate" grilles of angles corresponded, said the lecturer, to those on an ordinary globe, and represented angles of azimuth, laterally, as well as angles of altitude. The "Daylight Factor" grilles, on the other hand, represented units of light. By counting up the number of units in the sky area, it was possible to determine immediately, by inspection, the exact percentage of light received, and so to locate the precise spots at which the contours of inadequacy would fall. In addition to obtaining data optically by means of this instrument, it was also possible to obtain records on photographic plates, and prints of negatives so exposed had been used in considerable numbers of cases in Court. By using "Co-ordinate" grilles of angles, instead of "Daylight Factor" grilles, it was possible, by means of geometry, to reconstruct on photographs the positions of old buildings that had disappeared and of new buildings that it was proposed to erect.

A vote of thanks to the lecturer was moved by Mr. Victor Bain, F.R.I.B.A., President of the West Yorkshire Society, and seconded by Mr. Norman Culley, F.R.I.B.A., of Huddersfield.

"Rural Industries."

The winter number of "Rural Industries" contains various articles in which instruction and practical advice are given to the blacksmith, the potter and the designer in woodwork. Instruction on the making of blockings, illustrated by a full page of clear drawings, is given in an article on ornamental ironwork, and the seventh of the series of articles on oxy-acetylene welding describes the construction of a welding table and a portable trolley to accommodate the welding plant. Potters wishing to make glazed ware are given advice on the building of a small kiln, and drawings of four kilns suitable for this purpose are supplied, together with directions as to their construction and use. Attention is drawn to the valuable service afforded by the National Central Library to readers of non-fiction books. Details of these are set down in full, while space is also devoted to editorial notes, reviews of recent publications, news of the progress of rural industries work in the counties, and an index of the contents of the four issues of the magazine published in 1935. This issue well maintains the standard of this useful publication, which is published quarterly at the offices of the Rural Industries Bureau, 6, Bayley-street, London, W.C.1, and the terms of subscription are 1s. per annum post free.

LAW REPORTS

KING'S BENCH DIVISION.

Before MR JUSTICE HORRIDGE.

LIABILITY FOR ROAD CHARGES. ACTION AGAINST BUILDERS AND CONTRACTORS.

Parker v. P. Gallagher, Ltd.

This was an action by Mr. Arthur John Parker, of 5, The Chase, Romford, Essex, against Messrs. P. Gallagher, Ltd., builders and contractors, of 192, North-street, Romford, for a declaration that he was entitled to be indemnified by the defendants in respect of any assessment he might have to meet for road charges on premises known as "Portmeor," No. 5, The Chase, Marshall's Park, Romford. The plaintiff also claimed a declaration that the defendants were liable to make good any loss or damages incurred by him by reason of any failure of the defendants to hold him harmless and indemnified in respect of the road charges upon the said premises.

The plaintiff bought the premises from the defendants for £900, which included the cost of the conveyance, dated February 13, 1929, and his case was that it was a condition of such purchase that no road charges were to become payable by him upon the premises; but in breach of the agreement the defendants, by letters dated April 23, May 8 and 24, 1935, had refused to hold him harmless or indemnified in respect of the road charges incurred, and contended that they were under no liability so to do.

The defendants pleaded a denial of any such agreement as the plaintiff alleged, and they further relied upon section 40 of the Law of Property Act, 1925, as a defence to the action.

Mr. Robert Fortune appeared for the plaintiff, and Mr. G. O. Slade for the defendants.

At the conclusion of the evidence and the addresses of counsel, his lordship said it was perfectly obvious what had happened in this case. The defendants had appointed Messrs. Hilbery, Chaplin and Co. as their agents to find purchasers for their houses, with instructions that no road charges should be made. While the agents were so authorised, they circularised the plaintiff and others to the effect that there would be no road charges. It was true that on April 30 the defendants wrote to the agents that they must not any longer advertise that the houses were for sale with no road charges. In the circumstances, he held that the plaintiff was entitled to the declaration he asked for, with costs.

Mr. Fortune said there were a large number of other houses on the estate dependent on the decision which had been arrived at by the judge.

KING'S BENCH DIVISIONAL COURT.

Before the LORD CHIEF JUSTICE and MR. JUSTICE GODDARD.

THE SCHEME TO BUILD ON PART OF HACKNEY MARSH.

The Court, on the application of Sir Patrick Hastings, K.C., on behalf of objectors to the London County Council's proposal to take over a part of Hackney Marsh for the purpose of its East End redevelopment scheme, granted a rule *nisi* directed to the Minister of Health prohibiting any part of the Marsh being used for housing.

Sir Patrick said that the land, in 1893, was in the possession of Lord Amherst, and the local authority acquired it by a contract with Lord Amherst, who sold his rights, and another contract with the Commoners, who sold theirs. Those matters were dependent upon the purchase by the local authority and by local subscription. The matter went through satisfactorily and was incorporated in a special Act of Parliament—the London Open Spaces Act, 1893. The scheme under the Act was to procure the land as an open space. Section 12 of the Act empowered the Council to exchange any part of the Hackney Marshes for any other land adjoining which the Council might think desirable to substitute for the before-mentioned land; and the Housing Act, 1925, contained certain powers under which the Ministry of Health and the L.C.C. now purported to act. On July 31, 1934, the L.C.C. passed a resolution to acquire about 30 acres of the Marsh and to give in exchange about 50 acres of the Chigwell housing site, some seven miles away. That the applicants for the rule protested against, and then it was stated that there would be a public inquiry on December 18. There was, said Sir Patrick, a *prima facie* case that the action taken under the Act of 1925 was erroneous, and he asked the Court to grant a rule *nisi* prohibiting the Minister from doing three things:—

(1) Giving his consent to the appropriation of the land.
(2) Giving a certificate approving the exchange.
(3) Holding a local public inquiry

As before stated, the Court granted a rule *nisi* as asked.

KING'S BENCH DIVISION.

Before MR. JUSTICE PORTER.

ARCHITECTS' CLAIM FOR FEES.

Beard and Bennett v. Kanssen.

This was an action brought by Messrs. Beard and Bennett, architects and surveyors, of 101, Baker-street, W., to recover from the defendant, Mr. T. Kanssen, of Lancaster-place, Strand, W.C., £1,150 as the balance of fees plaintiffs alleged to be due to them for professional services rendered.

The plaintiffs' case, briefly stated, was that in October, 1933, they got into touch with the defendant, who was interested in the proposed erection of a cinema theatre, to be called the "Eldorado," in High-street, Putney, S.W., and that an arrangement was come to between them under which plaintiffs measured up and prepared plans, etc., for the building, and for which they had received a payment of £500 only.

Mr. Kanssen pleaded a denial of personal liability, and alleged that he, in dealing with the plaintiffs, had acted for a company to be formed, and of which fact the plaintiffs were aware.

After hearing the evidence, his lordship, in giving judgment, said that the plaintiffs sued in respect of fees they alleged to be due to them under the R.I.B.A. scale for the preparation of plans, etc., and supervising the building of the cinema at Putney. The defendant came over to this country, backed to some extent by a Belgian company, with the object of building and running the theatre. It was known to all the parties that a company was to be formed, but he (the judge) did not think that the plaintiffs had ever agreed to the liability for their fees being transferred from the defendant to the company. He accordingly gave judgment for the plaintiffs for the amount claimed, with costs.

Mr. R. M. Wilson appeared for the plaintiffs, and Mr. D. B. Stenham for the defendant.

COURT OF APPEAL.

Before LORDS JUSTICES GREER, SLESSER and SCOTT.

THE RATING OF CLOSED COTTON MILLS.

Townley Mill Co. (1919), Ltd., v. Assessment Committee of Oldham.

In this case, which raised a question of considerable importance as to the proper assessment for rates under Section 24 of the Rating and Valuation Act, 1925, the Assessment Committee for the assessment area of Oldham appealed from the judgment of a King's Bench Divisional Court, consisting of the Lord Chief Justice and Justices Hawke and Lawrence (reported in *The Builder* of August 2, 1935).

The case came before the Divisional Court on the appeal of the Townley Mill Co. (1919), Ltd., whose cotton mill, in consequence of trade depression, had been closed in 1931, from a decision of Quarter Sessions at Lancaster.

The facts were that the mill was erected in 1884, extended in 1905, and closed in 1931. The company owned the freehold of the premises, and when it was closed, all efforts to sell the freehold of the premises or the machinery were unsuccessful, and the only person left on the premises was an engineer, who was in the position of a caretaker. The justices at Quarter Sessions, although finding that the owners had no beneficial occupation of the mill as a cotton mill, found that there was such occupation because the hereditament warehoused the machinery. Apart from the machinery, the only things left on the premises were certain small chattels. The motive machinery, without which the machinery could not operate, had been removed. In these circumstances the company contended that the assessment ought to be reduced to the nominal figure of £7, which represented the value of the chattels left in the mill.

The Divisional Court so held and allowed the appeal of the company.

The Lord Chief Justice, in the course of his judgment in the Court below, said that the Act of 1925 seemed to have been designed manifestly to relieve industrial hereditaments from some of their rates, and for once the legislature had made its meaning plain. It got rid of the old doctrine that the premises were enhanced by the machinery they contained.

Justices Hawke and Lawrence concurred, and the company's appeal was allowed with costs and the assessment ordered to be reduced to the nominal figure of £7, which represented the value of the chattels left in the mill. From this result the Assessment Committee now appealed.

Section 24 of the Act of 1925 is as follows:

"(1) For the purpose of the making or revision of valuation lists the following provisions shall have effect with respect to the valuation of any hereditament other than a hereditament the value of which is ascertained by a reference to the accounts, receipts or profits of the undertaking carried on therein: (*a*) all such plant or machinery in or on the hereditament as belongs to any of the classes specified in the third schedule to this Act, *i.e.*, motive plant shall be deemed to be a part of the hereditament; (*b*) subject as aforesaid no account shall be taken of the value of any plant or machinery in or on the hereditament."

Lord Justice Greer, in a long elaborate written judgment allowing the appeal, said that the Rating and Valuation Act, 1925, had no application to the facts of the present case. It was, he said, contended on behalf of the company that they were not in beneficial occupation of the mill, as a mill, and therefore that they were not in rateable occupation of the mill. That contention was not consistent with the authorities extending over a period of half a century, the effect of which was that where premises were occupied by the owners and the occupation thereof was of some benefit, or of some value, to the owner, the premises were liable to be rated. It was clear on the facts that in this case the company, in occupying the mill for the purpose of housing the machinery, was deriving a benefit from the occupation of the premises, and therefore that the premises were rateable. The amount of the valuation for rating purposes would have to be decided by the proper tribunal.

The other members of the Court concurred, and the appeal was accordingly allowed, with costs.

Mr. Monckton, K.C., Mr. Trustram Eve, K.C., and Mr. Bancroft Turner appeared for the appellants, the Assessment Committee; and Mr. Tyldesley Jones, K.C., Mr. T. Eastham, K.C., and Mr. R. W. Leach for the respondents, the Townley Mill Co.

REPAIR OF PARTY WALLS: RIGHTS OF ADJOINING OWNERS

By W. T. CRESWELL, K.C., Hon. A.R.I.B.A., Associate S.I.

From time to time various questions arise as to which of some two adjoining owners is liable for the repair and maintenance of some party walls between their respective premises. Especially is this the case where one owner pulls down his building and thereby leaves the party wall exposed and insufficiently and quite inadequately supported. These questions have been more acute by reason of certain recent housing legislation which provides for the demolishment of such groups or units of dwelling-houses as have been reported insanitary to the satisfaction of the local authority. A local authority is empowered to put in operation two methods of securing demolition. They can make a clearance order requiring the owner or owners to demolish, or they can make a compulsory order to purchase the land themselves and demolish the buildings forthwith. Also, it has long been the case that when a building is a "nuisance," an effectual abatement of the nuisance may involve the pulling down of the premises if they are unfit for habitation or insanitary.

In general, it may be said that both in London and outside London a local authority, whenever it uses its powers to demolish all or so much of a structure as is in a dangerous and neglected condition, or is insanitary, or a nuisance, or unfit for habitation, because the owner of it cannot or will not do what is required of him, is empowered also to carry out any auxiliary work which the demolition makes necessary for public health or safety, as, for example, the shoring up and hoarding in of buildings. The owner of the building demolished, or partly demolished, must pay all expenses incurred by the local authority, including the cost of the failure of the authority to make good, and the cost of any damage resulting from the work as carried out.

However, the local authority is *not* empowered to do any repairs to the adjoining owner's property which is left standing; and, in fact, the authority is to refuse to do this.

The pulling down of a single house in a row, or of one of a pair of semi-detached houses, is fraught with much risk to the adjoining house or houses. More often than not the party wall is found to be in a very bad condition, and quite unsuitable to be exposed to the ravages of the weather. Moreover, in premises which were built many years ago, in times when no by-laws were in force, it is most usual to find that, instead of the party wall being taken up through the roof and coped or raked and cut to the underside of the continuous slating of the roof, as must now be done, it is only taken up to a sufficient height to support the purlins carrying the roof. Thus, when the adjoining building is taken down a gap is left in the party wall through which the weather will drain if it is left as it is, even for a short time during reconstruction; and when there is no attempt to rebuild the building pulled down, the owner of the building remaining so exposed is obviously placed under a difficulty, or is at a comparatively great cost to remedy it. There is no obligation whatever put upon the owner of the house pulled down to fill in this gap to the party wall—that is, merely because it is a gap or an eyesore—or to do anything to the wall itself, as it is now an external wall of the adjoining building left standing; but the owner of the land cleared is still required to remove or prevent any nuisance originating out of his part ownership of the party wall. Hence, if rain enters by the gap and becomes a nuisance to the adjoining owner, he (the owner of the cleared land) must remove or prevent the nuisance; and, further, if the adjoining building loses its vertical or lateral right of support by the demolition, then, if damage results, an action lies, and the owner of the building pulled down will be liable in damages to the adjoining owner.

The right to the continuance of the support afforded by one building to another has been recognised as an easement, and it is the duty of every owner of a building to keep it in such a state of repair that his neighbour will not be injured by its falling. See St. Anne's Well Brewery Co. *v.* Roberts and Others (1928), K.L.G. and M.R. 238. It may be left in a ruinous state, if it is not thus a nuisance to the neighbour; but if it is a nuisance, and dangerous, it must be shored up; or it may be removed altogether; but if so, steps must be taken to shore up the party wall left standing, if necessary, since an easement of support by prescription has accrued in respect to the said party wall. If damp penetrates a party wall after it is so exposed, because the wall is definitely defective, it becomes a question of degree, and whether the owner who has exposed it may be required to put it in a reasonable state of repair. In Barry *v.* Minturn (1913), A.C. 584 (a case in London where common law rights of support are inconsistent with the provisions of the London Building Act), it was held that, although dampness in a party wall is not a defect within the meaning of the Act, it may be, if it renders the party wall less effective for the purposes for which it is used or is intended to be used. It has been decided that, legally, a party wall is the external wall of both adjoining houses. See Green *v.* Eales (1841), 2 Q.B. 285. The case of Selby *v.* Whitbread and Co. (1917), 1 K.B. 736, dealt with two old houses built together so as to be mutually dependent one upon the other for support; they were separated by a party wall. One of these two houses was pulled down and the party wall left exposed. It was held that the standing house had a right to the support of the party wall which had been removed.

Outside the London area, when a wall is built over the boundary line of two adjoining pieces of land so that the centre of the wall coincides with the boundary line, the property in the wall follows the property in the land upon which it is built—that is, half the wall belongs exclusively to each, and neither can claim any damage from the other who pulls down his own half, though it damage or weaken the section of his neighbour left standing, providing always that in demolishing he has exercised due care. If, however, the centre of the wall does *not* coincide with the boundary line, then the property of each is in proportion to the width of his land up to the boundary line and covered by the wall. In these two cases the view is that the two parts of the wall are each technically an individual wall in juxtaposition to the other, and having no right of support from the other. If the proportion of land contributed by each is *not* known—that is, if the *exact* position of the boundary line cannot be ascertained—it must be taken for granted that both have a common ownership of the wall, and each owner is entitled to such support from the party wall as his building requires, and between them exist mutual rights and liabilities in the matter.

In any instance of an owner being convicted of neglecting his duty to the adjoining owner's property when pulling down, or failing to exercise due care, he is liable to restore support to his neighbour's property, even if he is able to prove that the building he has demolished was already in a bad condition, or if his neighbour's property is already in a bad condition, so that it might have been presumed that either would of itself fall down in a short time.

On the other hand, if the owner of the building left standing chooses himself to repair and make weatherproof the party wall, he must, if he finds it necessary to enter on the land left vacant for the purpose of carrying out these repairs, first obtain the permission of the owner to enter on it; otherwise he may be counted as a trespasser—guilty of unlawful entry on the land of another person. This trespass is actionable even if no damage of any kind is done by the trespasser or his agents to the land or anything thereon. A person unlawfully entering land, if he wrongfully places or fixes anything—for example, a ladder or scaffold poles—on it, is a trespasser.

INQUIRY BUREAU

QUESTIONS.

"Window Cleaner Hooks": Name Wanted.

Sir,—I should be obliged if any of your readers can supply me with the name of the manufacturers of a type of window cleaner hook. The only clue I possess is a box which originally contained such hooks, marked No. 7215/A.

Fire Escape.

Oilproof Floor and Wall Material.

Sir,—We shall be glad to know whether it is possible to obtain a floor and wall covering, similar to terrazzo, that is oilproof, hard wearing and not liable to crack easily. We should also like to know whether such material can be made to any colour desired.

Oilproof.

Tiled Floor in Bathroom.

Sir,—We should be pleased to have the advice of your readers as to the best method of laying a tiled floor in a bathroom. The present floor consists of 7 in. by 2 in. joists covered with ordinary deal floor-boards. The flooring it is proposed to lay in this room consists of sand-blasted glass tiles 1½ in. square by $\frac{5}{16}$ in. thick, laid to a cement screed. We should be indebted for any information you can give us as to the best method, and also a sectional detail. We should also like to know whether it is necessary to ventilate the floor to prevent the joists rotting.

J. C. S.

Measurement of Plastering.

Sir,—I have a problem in regard to a bill of quantities, the variations of which I am settling up. The question in dispute is:—

(1) That the plastering in narrow widths to reveals (as shown in the following item—"6 ft. super, render and set as brick walls but in narrow widths to reveals") should also have included for all narrow widths in reveals (as in the item—"Extra over ordinary plastering for the following in Keene's cement on and including a backing of Portland cement and sand: Run rounded external angle, including one 2 in. wing and narrow return").

(2) That owing to the description of "Extra over ordinary plastering for the following in Keene's cement, etc.," ordinary plastering should have been measured and described as in narrow width first, and then included under the Keene's item.

(3) Can I claim for ordinary plastering in narrow widths to reveals, besides the item in para. (1)? (The plastering items are short.)

M. P.

[If the quantities are "short," then, if the bills of quantities form part of the contract, the inquirer would be entitled to claim "extras" for the shortage. Inasmuch as the item referred to in para. (1) is concerned, since ordinary plastering in narrow widths has been taken in the bills of quantities, but none has been taken in the extra on plastering in Keene's cement, the answer to the three questions (if the quantities form part of the contract) is, Yes.—Editor.]

ANSWER.

Sound-proofing Wood Floor on Joists.

[Answer to "C. P.," January 3.]

Sir,—A satisfactory remedy will be to strip the floorboards and lay over the top surface of the joists a layer of sound-insulating quilt, upon which battens should be fixed and the floorboards refixed to top of same. This method will probably be sufficiently sound-resisting to answer the purpose.

Acoustic.

[Other inquiries and replies unavoidably held over.—Ed.]

THE BUILDING TRADE

BUILDING LAWS AND REGULATIONS—II.

By B. PRICE DAVIES, F.S.I., M.T.P.I.
(Author of "Estimating for Buildings and Public Works.")

3.

WHAT IS A "NEW BUILDING"?

Here again we have to bear in mind that the legal interpretation of the term "New Building" may differ from that of the general version. The building by-laws are for "New Buildings," so that old buildings have not to be altered continually to suit each new issue of building by-laws. Yet, in a legislative sense, an old building can come within the term of "new building," and therefore within the scope of building legislation.

Section 159 of the Public Health Act, 1875, provides that :—

"*For the purposes of this Act the re-erecting of any building pulled down to or below the ground floor, or of any frame building of which only the framework is left down to the ground floor, or the conversion into a dwelling-house of any building not originally constructed for human habitation, or the conversion into more than one dwelling-house of a building originally constructed as one dwelling-house only, shall be considered the erection of a new building.*"

It will be seen from this that the division of a house into a block of flats constitutes a new building.

The Section above is general law, but we now come to law which is only effectual if the local authority has taken steps to make it so.

Section 23 of the Public Health Acts Amendment Act, 1907, which is in force only where an Order declaring it in force has been made by the Ministry of Health or the Local Government Board, provides that

"*For the purposes of this Act and the Public Health Acts, and any by-laws made thereunder, each of the following operations, namely :—*

(a) The re-erecting, wholly or partially, of any building of which an outer wall is pulled down or burnt down to or within ten feet of the surface of the ground adjoining the lowest story of the building, and of any frame building so far pulled down or burnt down as to leave only the framework of the lowest story;

(b) The conversion into a dwelling-house of any building not originally constructed for human habitation, or the conversion into more than one dwelling-house of a building originally constructed as one dwelling-house only;

(c) The re-conversion into a dwelling-house of any building which has been discontinued as, or appropriated for any purpose other than that of, a dwelling-house;

(d) The making of any addition to an existing building by raising any part of the roof, by altering a wall, or making any projection from the building, but so far as regards the addition only; and

(e) The roofing or covering over of an open space between walls or buildings;

shall be deemed to be the erection of a new building."

It will be observed that (*a*) and (*b*) are largely covered by Section 159 of the Public Health Act of 1875, but that they are a little more definite.

The remaining paragraphs (*d*) and (*e*) are additional, and are also definite in their way. Paragraph (*e*) is important in the case of the erection of a shelter or open shed in an "Open Space."

The Section provides what shall be deemed a new building. These definitions are not, however, exhaustive. A small alteration cannot be considered the erection of a new building. If, on the other hand, the alterations are extensive, or if the class or purpose of the building is being altered, it is clearly a new building. Between these two extreme cases there may be thousands of cases upon which a difference of opinion may arise. Whether an alteration to a building may be deemed to be a new building within the meaning of the by-laws is a question of fact, and in case of dispute can be decided by the Courts only.

It will be observed that the Section provides for the conversion of a house into a dwelling-house, but makes no provision for the conversion of a dwelling-house into a house for another purpose, such as a factory or workshop, a hall or similar building.

Again, the by-laws make no provision for alteration in the mere use of a dwelling-house for, say, a factory or warehouse, however necessary it may appear from the point of view of stability and strength of the floors and walls of the building.

It is, however, an offence under Section 33 of the Public Health Act Amendment Act, 1890, knowingly to use for the purpose of habitation any building described on a deposited plan as being for use otherwise than a dwelling-house.

ALTERATIONS TO BUILDINGS.

The local authority may not be satisfied with the above provisions of law, and may seek more power by means of by-laws.

The subject of alterations to buildings has been dealt with to some extent in the early part of the previous series dealing with Building By-laws, and the number of the by-law is 60/62. In that case it was a matter of confining the jurisdiction of the by-laws to the alteration, so that the building as a whole was not to come within such jurisdiction. Such alteration is not to alter seriously the purpose of the building, so as to make one house into two habitations, for in that case the major action would dominate, and the alterations would, in some ways, affect the building. An example would be to divide a large long house into two houses, in which case a party-wall not less than 8½ in. thick would be essential.

For more definite powers in this direction it is necessary for the local authority to have adopted Section 23 of the Public Health Acts Amendment Act of 1890 (as referred to previously) or to acquire similar powers otherwise. By-laws can then be adopted for preventing buildings which have been erected in accordance with by-laws made under the Public Health Acts from being altered in such a way that if at first so constructed they would have contravened the by-laws.

We come here to the important question of which by-law. There would be the by-laws of the period when the building was erected, and the by-laws of the present period, and these can be quite contradictory to each other. The writer is of the opinion that the by-laws of the present period would prevail, but that the influence of by-laws of the past should be given due consideration when decisions are arrived at.

The following by-law has been allowed by the Ministry of Health for this purpose :—

For preventing buildings which have been erected in accordance with by-laws made under the Public Health Acts, from being altered in such a way that as at first so constructed they would have contravened the By-laws.

"*Where a building has been erected in accordance with any by-laws under the Public Health Acts, a person shall not alter the building in such a way that if at first so constructed it would have contravened those by-laws unless the alteration is made in accordance with, or so as not to contravene, the foregoing by-laws.*

"*(1) Every person who intends to alter a building which was erected in accordance with by-laws made under the Public Health Acts shall, if the alterations will affect any work to which those by-laws applied, give to the Council notice in writing of his intention, and shall send or deliver the notice to the clerk or surveyor of the Council, together with a sufficient description in writing of any materials intended to be used in the alteration.*

(2) He shall also send or deliver to the clerk or surveyor complete plans and sections of the intended alteration, drawn in a clear and intelligible manner on suitable and durable material, to a scale of not less than one inch to every eight feet.

Provided that where the alteration is so extensive as to render a smaller scale necessary it shall suffice if the plans and sections are drawn to a scale not less than one inch to every sixteen feet.

(3) He shall show upon the plans and sections the position, form and dimensions of the several parts of the building intended to be altered.

(4) He shall also send or deliver to the clerk or surveyor a block plan of the alteration of the building, drawn in a clear and intelligible manner on suitable and durable material to a scale of not less than one inch to every forty-four feet.

"*Every person who in altering a building shall have contravened the foregoing by-law numbered . . . and shall within a reasonable time after such contravention have received notice in writing from the surveyor of the Council, pointing out in what respect that by-law is contravened, and, as a result of such notice, shall have amended or added to the alteration so as to secure compliance with that by-law, shall within a reasonable time after the completion of such work as he may have undertaken to secure compliance with that by-law, give notice in writing to the surveyor of the completion of such work, and shall at all reasonable times, within a period of two days after the giving of such notice, afford the surveyor free access to such work for the purpose of inspection.*"

Then follows another by-law :—

"*Every person who shall alter a building which was erected in accordance with the by-laws made under the Public Health Acts shall, if the alteration affects any work to which those by-laws applied :—*

(1) At all times during the alteration of the building afford the surveyor free access to the building for the purpose of inspection.

(2) Within a reasonable time after the completion of the alteration of the building, give the surveyor notice in writing of the fact, and at all reasonable times within a period of seven days after such notice afford the surveyor free access to the building for the purpose of inspection.

"*Where in the foregoing by-laws with respect to the alteration of buildings access is required to be afforded to the surveyor of the Council, access shall be deemed to be required to be afforded to any person duly authorised in writing to act in the place of the surveyor and to any assistant or workman accompanying such surveyor or person.*

"*Every person who shall in pursuance of the foregoing by-laws with respect to the alteration of a building be required to give, send or deliver any notice, plans or sections, shall sign such notice, plans or sections himself or cause these to be signed by his duly authorised agent, and he shall cause any such notice, plans or sections to be sent or delivered either to the office of the Council or to the office of the person to whom the notice is required by such by-laws to be sent or delivered.*"

The above by-laws bring the alteration of buildings under the control of the local authority in the same way as the usual type of new building.

With these two by-laws in the by-law series of a local authority there would not be the need of the building by-law No. 60/62 referred to above.

DAMAGES FOR PERSONAL INJURIES

With reference to our note in the issue for September 20, under the above heading, on two cases in which the effect of the Law Reform (Miscellaneous Provisions) Act, 1934, was considered, we may now note that the first case to reach the Court of Appeal on this subject has been reported (*Weekly Notes*, October 26), the case being Rose *v.* Ford.

The action was brought by the father of a girl who worked for her living and who had died after a collision between a motor-cycle combination, in which she was a passenger, and a motor car driven by the defendant. The accident happened on August 4, 1934, shortly after the above Act came into operation, and two days later she had one of her legs amputated, and she only survived a further two days. The claim was made under both the Fatal Accidents Act for the dependents and the new provisions for the benefit of the deceased's estate. The sole question before the Court of Appeal was the question of damages. In such a case, before the passing of the above Act, the claim of the parents would have been confined to an action under the Fatal Accidents Acts, 1846 and 1908, but the Law Reform Act introduced certain amendments in the law and also provided that the right conferred by that Act for the benefit of deceased persons' estates should be in addition to the rights conferred upon dependents under the Fatal Accidents Acts.

The effect of this is that the old maxim *actio personalis moritur cum persona* is modified, and causes of action subsisting against a deceased person, or vested in him, shall survive against, or for the benefit of, his estate. But it is provided in Section 1, sub-section (2) (c), that where a cause of action survives for the benefit of the estate of a deceased person, the damages recoverable for the benefit of his estate, "where the death of that person has been caused by the act or omission which gives rise to the cause of action," shall be calculated without reference to any loss or gain to his estate consequent on his death, except that a sum in respect of funeral expenses may be included. Funeral expenses borne by the dependents could also be recovered under the Fatal Accidents Acts.

Now, just before the Law Reform Act came into force, it was decided by the Court of Appeal (Flint *v.* Lovell, 1935, 1, K.B.354) that a person living at the date of the trial could make a claim against a person who had injured him by his wrongful act in respect of the shortening of his expectation of life, and the points raised under the Law Reform Act have been whether claims for pain and suffering of the deceased and in respect of the shortening of his expectation of life can be made by his personal representatives.

As regards pain and suffering, it has been held by a court of first instance in the case Slater *v.* Spreag (*Weekly Notes*, October 12) which we noted in our issue for September 20, that damages could be recovered by the legal personal representatives if it could be proved that the deceased had in fact endured any pain, and the Court of Appeal have accepted this, as will be seen when we come to deal with the damages awarded in the case under consideration. The trial judge at the Assizes had awarded, first, £300 to the plaintiffs under the Fatal Accidents Acts, and no question was raised as to that, but a further sum had been awarded of £500 in respect of pain and suffering and the loss of a limb. The Court of Appeal were asked to assess these two items separately, and having regard to the shortness of the time during which the deceased had survived, they awarded £20 for pain and suffering, but, in addition to this, placed a nominal sum on the loss of the leg of 40s.

But in regard to the claim for loss of expectation of life, the Court of Appeal were divided in opinion, but the majority held that the principle of Flint *v.* Lovell did not extend to a case where the injured person was not living at the date of the trial. The principle laid down in Admiralty Commissioners *v.* Owners of s.s. *Amerika* (1917, A.C. 38), and Baker *v.* Bolton (1808, 1, Camp 493), that the right of action in cases of injury from the wrongful act of another person becomes merged in a felony applied in this case on the death of the deceased, and nothing in the Law Reform Act affected this doctrine. Therefore, under this head the Court of Appeal differed from expressions of opinion delivered in Slater *v.* Spreag, that if the injured man regained consciousness before his death, a claim for loss of expectation of life might be made for the benefit of his estate.

DEFENCES TO BREACH OF CONTRACT

We have received a report of a case referred to an Official Referee to assess the damages for breach of contract, that breach having been admitted, in which the conduct of the defence was commented upon by the Referee with some severity. It was stated on behalf of the plaintiff that "the type of contract in the case was one which had become common in recent years. Builders of new housing estates wanted brochures for distribution illustrating the houses they were erecting, and tradespeople in and around the estate wanted to get their advertisements before the new tenants. This was where the plaintiff stepped in. He supplied the builder with the brochures, and the builder undertook to distribute them and to give him the names of all incoming tenants. Among other things the plaintiff was entitled to keep all advertising revenue derived from the brochures. In this case the contract was an important one because the defendants were really big estate developers."

The contract had been repudiated the day after it had been signed, so no question could arise as to the manner of performance, but before the Referee an attempt was made to discredit the plaintiff's business. The Referee is reported to have said that no effort had been made to assist the Court from the plaintiff's books, and all that the defendants had done was to try to suggest to the Court that the plaintiff's business was in some way a discreditable one.

One such suggestion had been made to the Court which the Referee said had been proved to be unfounded, and counsel for the plaintiff said that he had been led to expect a charge that the plaintiff's business was a sort of bogus business, and the plaintiff had been compelled to bring every available witness to give evidence on any point that might be raised. The Referee said that the defendants were debarred at this stage of the action from making any such allegation, and the only point before him was the amount of the damages, and in the result he awarded £400.

We believe that such cases are rare, but as there are some persons who appear to think that any appearance in Court renders either a party or a witness open to an attack upon his character either by cross-examination or in evidence, it is well to point out that attacks upon character are confined within certain well-recognised limits, and that a bad case cannot be bolstered up by abuse of the other side.

RATING CROWN PROPERTY

Sub-Post Offices.

In our Legal Section for November we noted a case in which it was held that a hall erected by the Territorial Association of Derby which was regularly used for military purposes, but occasionally for dances organised by the officer commanding the company, was exempt from assessment for rates under Section 64, sub-section (3), of the Rating Act, 1925, as being occupied by or on behalf of the Crown for public purposes. The court in that case declined to read into the statute the word "exclusively," but laid it down that in every case regard had to be paid to the real purpose for which the hereditament was occupied, and in this case had no difficulty in discriminating between users, as it was proved that the purpose of the dances was of a military character, as they were given to keep the men together during the winter months and to stimulate recruiting.

Another question has now been raised under this section of the Act in the recent case Williams *v.* Neath Assessment Committee (*The Times*, December 11). Mr. Williams was the owner of a house in which he and his wife resided, and except for that portion in which they resided the premises were solely used by his wife as a post-office by herself and her assistants, of whom her husband was one. The Assessment Committee had assessed the hereditament at gross value £46, and rateable value £36, but on appeal to Quarter Sessions the gross value had been reduced by deducting the value of the post office, £18, from the gross value as exempt under the Act, thus making the gross value £28 and the rateable value £21. The Divisional Court reversed this decision of Quarter Sessions on the ground that under the contract with the Post Office it was the duty of the postmistress to provide suitable premises and equipment to carry on the postal work, and thus that she was neither a servant nor an agent of the Postmaster-General, but was in the position of an independent contractor who had agreed on certain terms to carry on, on her own premises, business connected with the postal service, and it was impossible that there was any occupation of the premises on behalf of the Crown. They were occupied by her husband on his own behalf in order that his wife might carry out the terms of her contract with the Crown.

It may be noticed that this decision confirms the recommendation of the Central Valuation Committee dated October 14, 1927, that the Treasury should be informed that "in the opinion of the Committee the tenant of a sub-post office should not be allowed to escape payment of rates where he is paid by the Post Office an annual inclusive remuneration covering rates, and claims exemption from rates on the ground that his occupation is for public purposes." This recommendation referred to assessments under Section 64, sub-section (3), of Government property.

MATERIALS PRICES, 1935-1936

	January 1, 1935.			January 1, 1936.		
	£	s.	d.	£	s.	d.
Bricks—						
Stocks	4	2	0	4	2	0
Flettons	2	11	3	2	8	3
Glazed	21	0	0	21	0	0
Thames Ballast	0	7	3	0	7	0
Pit Sand	0	7	9	0	8	0
¾ in. Shingle	0	7	3	0	7	3
¾ in. Broken Brick	0	11	3	0	11	0
Portland Cement	2	0	0	1	19	0
Ground Blue Lias Lime	1	17	6	1	17	6
Bath Stone	0	2	10	0	2	10
Portland Stone	0	4	4½	0	4	4½
Building Timber—						
4 in. x 11 in.	23	10	0	23	10	0
3 in. x 11 in.	19	10	0	19	10	0
3 in. x 9 in.	19	10	0	19	10	0
3 in. x 7 in.	18	10	0	18	0	0
3 in. x 4 in.	18	0	0	17	10	0
Slates (per 1,000)—						
24 in. x 12 in.	29	15	0	29	15	0
20 in. x 10 in.	19	7	6	19	7	6
16 in. x 10 in.	13	10	0	13	10	0
Tiles—						
Machine made	4	7	0	4	2	6
Hand made	5	0	0	4	10	0
R.S. Joists	11	10	0	12	0	0
Iron—						
Common bars	10	10	0	11	0	0
Mild steel bars	10	0	0	11	0	0
Sheet lead	17	5	0	23	10	0
Raw Linseed oil	0	2	8	0	3	2
Turpentine	0	4	5	0	4	4
Ground English White lead	43	0	0	51	0	0
White lead paint	61	0	0	70	0	0
Red lead	31	0	0	37	0	0
Glass—						
15-oz. Sheet		2⅞			2⅞	
21-oz. ,,		3½			3½	
26-oz. ,,		4¼			4¼	

NEW BUILDINGS IN LONDON

The Editor would be glad to receive information for publication under this heading from architects, builders, or other persons concerned. Items should be received at THE BUILDER *Office not later than Wednesday morning.*

ACTON.—FLATS.—Plans have been prepared for the development of a further site in Horn-lane, W.3, between Creswick-road and Julian-avenue, by the erection of a block of 131 flats, shopping arcade, swimming pool, tennis courts, garages, etc. The architect is Mr. Frederick Gibberd, 29, Sloane-square, S.W.1. No contracts placed.

ACTON.—ALTERATIONS. — And additions are to be made to the showroom at 57-59, Churchfield-road, for Messrs. Brown and White. Plans by Mr. S. H. West, 40, The Broadway, Ealing, W.

ACTON.—FLATS.—A block of 16 flats is to be built at the site of 74-76, Park-road North, for Mr. F. C. Townsend. The architect is Mr. F. Roy Easton, 51, South-road, Southall. No contracts placed yet.

ACTON.—FLATS. — The Morris Estates, Ltd., Dorland House, Regent-street, S.W.1, are to build 44 flats and 22 garages at Springfield, Rosemount-road, W.3. The plans have been prepared by the company's architect, Mr. H. J. Palmer. No contracts placed.

BARKING.—HOUSES.—The Borough Engineer has submitted to the T.C. a plan showing an extension of the existing Eastbury Housing Estate. The scheme provides for 34 families, in 22 houses and two blocks of six flats, at a total estimated cost of £20,000.

BECONTREE.—HALL.—The Barking B.C. has approved a lay-out plan submitted by the Borough Engineer for the erection of a building to be used as a public hall, and to be erected in Woodward-road, at £16,000.

BEXLEY HEATH.—CHURCH.—Funds are being raised for a new church, etc., at Barnhurst, with accommodation for about 450 seats. No contracts have been placed, but plans have been prepared by Mr. Percy M. Andrews, A.R.I.B.A., 9, Newcomen-street, S.E.1.

CAMDEN TOWN.—REBUILDING.—Of the main block of the Royal Veterinary College, Great College-street, N.W.1, part of a £300,000 programme, is to be put in hand shortly. The architect is Mr. H. P. G. Maule, F.R.I.B.A., 12, Stratford-place, W.1.

CHELSEA. — FLATS. — The Metropolitan Police is to erect a block of married quarters in Elystan-street, S.W.3, and have accepted the tender of Messrs. Haymills, Ltd., The Avenue, Wembley Park, for the work. The plans have been prepared by the Police Architect, Mr. G. Mackenzie Trench, F.R.I.B.A., New Scotland-yard, Whitehall, S.W.1.

EALING.—HOUSING.—Messrs. Henry Boot and Sons, Ltd., 10, The Boltons, South Kensington, S.W.10, have purchased the site of the Princess Helena College, which is to be developed for housing purposes.

EAST SHEEN.—FLATS.—Mr. Phillip A. Roffey, Martyn House, Disraeli-road, Putney, S.W., is the architect for a block of flats in St. Leonard's-road, S.W. The building will be of six stories accommodating 100 suites.

EDGWARE. — SHOPS. — Messrs. Taylor Woodrow Estates, Ltd., 10, Grange-parade, Hayes, contemplate the erection of shop premises in Glengall-road. Plans have been prepared by the company's staff.

ESSEX.—BUILDING.—The following schemes have been approved by the C.C. : Swimming bath at South-East Essex Technical College, Walthamstow, at £4,500; two additional classrooms at the County High School for Girls, Brentwood, at £1,748; enlargement of the Art Room of the County High School for Girls, Leyton, at £1,352; enlargement of Hornchurch Park-lane School, at £6,219, a contract having been placed with Messrs. Harris Bros., Billericay; enlargement of Council School, South Hornchurch, at £11,187; temporary out-patients' department at the Oldchurch Hospital, Romford, at £3,290, the contractor being Mr. S. W. Stedman, Birchdale-gardens, Chadwell Heath; and additional accommodation at Sutton's Institution, Hornchurch, at £12,991, for which tenders are to be invited.

EWELL. — ADDITIONS. — The Epsom and Ewell U.D.C. is inviting tenders for general structural alterations in connection with the conversion of part of Ewell Court House, Ewell, into a health centre for the Surrey C.C. Application is to be made to Mr. Norman Auty, A.M.I.C.E., engineer and surveyor.

HENDON.—CHURCH.—Messrs. Welch and Lander, 8, Gloucester-place, W.1, are the architects for a new Methodist church on the site of the present church at the corner of Egerton-gardens and The Burroughs. The minister is the Rev. H. B. Cowl, of 158, Station-road, Hendon. No contracts placed.

HESTON.—FLATS.—Mr. Arthur P. Watts, Station-approach, Ashford, is to erect a block of 20 flats in Sutton-road. Plans are by Mr. G. Whittaker, F.R.I.B.A., 13, Queen Anne's-gate, S.W.1. No contracts placed.

HOLBORN.—FLATS.—Messrs. Seth-Smith, Monro and Matthew, 46, Lincoln's Inn-fields, W.C.2, have prepared a scheme in connection with the erection of a new building on a site fronting John-street, Henry-street and John's-mews. The building comprises a garage in the basement, a chapel which is to be rebuilt in the place of an existing chapel on the site, and 58 flats in place of old and dilapidated houses.

HOLLAND PARK-AVENUE. — FLATS.— Plans have been prepared by Messrs. T. P. Bennett, F.R.I.B.A., and Son, 43, Bloomsbury-square, W.C.1, for a block of 40 flats.

HOUNSLOW.—SHOPS.—A large shopping parade of 25 shops is to be erected at the junction of Burn's-way and the Great West-road. The work will be commenced shortly by Messrs. Harris (Contractors), Ltd., 302, Bath-road, Hounslow. The architects are Messrs. Roper, Son and Chapman, 162, High-street, Hounslow.

ISLEWORTH.—LIBRARY.—The Heston and Isleworth T.C. have accepted the tender of Messrs. Haymills, Ltd., The Avenue, Wembley Park, at £6,478, for the proposed branch library at the Redlees site, in lieu of one previously recommended. The plans have been prepared by Mr. J. G. Carey, M.Inst.C.E., Town Hall.

ISLINGTON.—FLATS.—Messrs. Haynes & Haynes, 11, Central-parade, Wembley, are the architects, and Messrs. Walter Taylor (Builders), Ltd., are the builders for a block of flats now being erected in 123-139, Essex-road, N.1.

LEYTON.—CLASSROOMS.—The E.C. recommends £1,335 for providing classrooms at the Children's Playing Field, Ive Farm.

MAIDA VALE.—FLATS.—The Greville Place Property Co., Ltd., Milburn House, Newcastle-on-Tyne, have accepted the tender of Messrs. Gee, Walker and Slater, Ltd., Fitzmaurice-place, W.1, for the erection of a large block of high-class flats at 122-126, Maida Vale and 2, Greville-place, N.W. Plans have been prepared by Messrs. Elcock and Sutcliffe, FF.R.I.B.A., Adam House, Strand, W.C.2

MERTON.—SHOWROOMS.—The South London Motors, Ltd., 516, Streatham High-road, S.W.16, are to have new motor showrooms and a petrol station erected on the Bridge House site in Morden-road. The architect is Mr. Laurence Kennard, 14, Railway-approach, London Bridge, S.E.1. No contracts placed.

MERTON.—SHOPS.—And offices are to be erected in Aberconway-road from plans prepared by Messrs. Stanley Beard & Bennett, 101, Baker-street, W.1. The builders are Messrs. C. H. Gibson, Ltd., 509, London-road, Thornton Heath.

NORTH END-ROAD. — FLATS. — Messrs. Y. J. Lovell and Son, 6, Bathurst-street, W.2, are erecting flats in North End-road, near West Kensington railway station, to be known as "West Kensington Court."

PERIVALE.—EXTENSIONS.—Are to be made to the factory in Wadsworth-road, W., for Messrs. Pond's Extract Co., Ltd. The contract has been placed with Messrs. Percy Bilton (Construction), Ltd., 113, Park-street, W.1. The architects are Messrs. Harriss and Harriss, 43, Bedford-row, W.C.1.

PUTNEY.—RESTAURANT.—The contract for the superstructure of the new restaurant in Putney High-street and Upper Richmond-road, S.W.15, for Messrs. Zeeta, Ltd., has been placed with Messrs. Simons Bros., 173, Upper Richmond-road, S.W.15. The total cost of the building is £70,000. The plans have been prepared by Mr. Bernard George, F.R.I.B.A., staff architect to Messrs. John Barker and Co., Ltd., High-street, Kensington, W.8.

SOUTH RUISLIP.—SCHOOL.—Rev. E. S. Sutton and others intend to provide in Herlwyn-avenue, a new public elementary school for about 180 children.

TEDDINGTON.—STUDIO.—The work of excavating the site for the new Warner Brothers-First National film studios at Teddington has commenced. The new buildings have been designed by Messrs. Naylor and Roberts, 19, Hanover-square, W.1, and are to cost £100,000. The work is being carried out by Messrs. W. H. Gaze, Ltd., High-street, Kingston-on-Thames.

TOTHILL-STREET.—OFFICES.—A large site in Tothill-street, S.W.1, is being cleared for the erection of a block of modern office premises. The contract will be carried out by Messrs. Holland & Hannen and Cubitts, Ltd., 1, Queen Anne's-gate, S.W.1, to the plans of Sir John Burnet, Tait and Lorne, 1, Montague-place, W.C.1.

TWICKENHAM.—CLASSROOMS.—The E.C. has approved the provision of three more classrooms at the Nelson school, at an estimated cost of £3,000. Plans by the Borough Surveyor.

TWICKENHAM.—RECONSTRUCTION.—H.M. War Office has placed a contract with Mr. E. J. Logan, 212a, Shaftesbury-avenue, W.C.2, for internal reconstruction of the Royal Military School of Music, Kneller Hall.

WEMBLEY.—BUILDING.—The U.D.C. has approved plans submitted by the Wembley Hospital for a post-mortem room, chapel and training school for nurses, in Fairview-avenue.

WEMBLEY.—MARKET.—The U.D.C. has received an application from Mr. Green, architect, on behalf of Mrs. Garner, of Snaresbrook, for a covered market in Edgware-road.

WILLESDEN.—PAVILION.—The B.C. is inviting tenders for a sports pavilion and incidental works at Gibbons recreation ground. The Borough Engineer, Mr. F. Wilkinson, Town Hall, Dyne-road, N.W.6, has prepared the plans.

WOOD GREEN. — RECONSTRUCTION. — Mr. S. J. Funnell, architect to Messrs. Charrington & Co., Ltd., brewers, Anchor Brewery, Mile End-road, E.1, has prepared plans for the internal reconstruction of the "Duke of Edinburgh" public-house in Mayes-road. No contracts placed.

WOOD GREEN.—STUDIOS.—Mr. M. T. Tudsbery, engineer to the B.B.C., has prepared the plans of the new studios for television broadcasting, which are being erected at Alexandra-palace (East Tower). The general contractors are Messrs. Higgs and Hill, Ltd., Crown Works, South Lambeth-road, S.W.8.

The Bodleian Library Extension.

The proposed extension of the Bodleian Library in Broad-street has been criticised on several points by the City of Oxford Town Planning Committee. On consideration of a letter from Sir Giles Gilbert Scott with reference to the committee's suggestions relating to the elevation, the committee have placed on record their adherence to their opinion, but, recognising the important character of the building and the necessities imposed on the architect by the site and purpose of the building, have recommended that the plans, so far as the elevation was concerned, should be approved under the interim development order. The report was adopted without discussion.

HOUSES IN TIMBER

The Timber Development Association, Ltd., held a luncheon at Grosvenor House, W., on Monday last, to present the awards to the successful candidates in the Timber Houses competition held recently and illustrated in our issue of December 6 last. The chair was occupied by Mr. Percy B. Meyer, President of the Timber Trade Federation. Amongst those present were the assessors, Messrs. Robert Atkinson, F.R.I.B.A., G. Grey Wornum, F.R.I.B.A., and E. Maxwell Fry, A.R.I.B.A. After the loyal toast, Mr. John Gloag (Public Affairs Director of the Timber Development Association) spoke on the Timber House Competition. The competition, he said, was to give architects an opportunity to be inventive in the solution of a modern problem, using a very old and friendly material. They wanted to demonstrate the part that wood could play structurally in the modern movement in design. That the architectural profession found the competition both interesting and stimulating was proved by the fact that 700 inquiries for particulars were received, and 200 designs were submitted. It was part of an extensive educational programme upon which the Timber Development Association was engaged. For example, the Association had announced an essay competition on "The Romance of Wood" which was open to the general public, and in which Lord Iliffe was presenting the prizes, of which the first was £100. The Association was hoping through that competition to get ideas about the use of wood from all over the country, ideas which would contribute to its educational work. By the courtesy of the London Passenger Transport Board, the Association was shortly to hold an exhibition at Charing Cross Underground Station, and that exhibition, which was concerned with timber in all its aspects, was being designed by Mr. Paul Nash.

Professor Walter Gropius said that the results of the competition, particularly the winning designs, provide a good answer to all those who wrongly, and with a one-sided prejudice, believed that a modern building could only be erected in steel and concrete. "The modern form of a building," he declared, "is only conditionally dependent on the newness of the construction material. The wooden structure is the earliest form of a skeleton construction, and it has a close relationship to skeletons in steel and reinforced concrete of to-day. Horizontal fenestration—the 'window ribbon'—which is such a significant feature of modern architecture, is often characteristic also for wooden skeleton construction, in contrast to the brick building, unless the brick is combined with steel." The really creative architect, he continued, did not tie himself up with only some special materials. It was "up to" him to discover new possibilities in all sorts of materials. Wood was a material which, from the time of Noah's Ark up to the present day, had kept its inestimable value, and was favoured by most people because of its organic living qualities. Science had improved the methods of manufacturing and employment: they need only think of the new application of free spanned wooden girders for large spaces, such as halls, or, again, of the invention of plywood, which was only in the beginning of a very promising development. In many countries the idea of wooden dwellings had received a new impulse from advances in constructional technique. To attain standards should be the objective of all effort.

Mr. G. Grey Wornum, F.R.I.B.A., speaking on behalf of the assessors, said the competition was not for the production of the half-timbered house, but for the all-timbered house—using timber in all its modern forms if necessary, including plywood and fibre board, and small sized scantlings. One felt that most of the competitors had regarded the problem first as "a design for living," and had concentrated on their general conception of planning and arrangement. It would then appear that they had selected timber construction and finish for choice, as the most elastic medium in which to carry out their building. He said that because the construction appeared to fall into place so easily and so economically, whether a cantilever, a long span opening, or a support was required. He thought that an economical small flat-roofed timber house, with the long pergola and terrace lines, that timber construction so easily gave, could be planned successfully by a good architect for any landscape.

The plans and perspectives of the competition are on view at the Building Centre, 158, New Bond-street, W.1, till January 24.

RATING MACHINERY IN AN UNUSED MILL

In our Legal Section for July 26, 1935, we noted a case, Townley Mill Company (1919), Ltd. *v.* Oldham Assessment Committee, in which it was held that under section 24, subsection (1), of the Rating Act, 1925, where a mill was disused, but the machinery remained on the premises in the care of an engineer caretaker, in making the valuation no account should be taken of the process machinery as being warehoused in the mill, and we think it well at once to draw attention to the fact that this decision has now been overruled by the Court of Appeal. Before the Court of Appeal it was argued, firstly, that apart from the section no value in rating law could be put on premises only used as a warehouse for machinery, for no hypothetical tenant would pay rent in such circumstances; and, secondly, that even if the premises would, apart from the section, have a rateable value as a warehouse, then under the section no account should be taken of the process machinery.

It may here be stated that section 24 relates to premises the value of which is not ascertained by reference to the accounts, receipts or profits, and then provides (*a*) that all such machinery or plant belonging to any of the classes specified in the Third Schedule shall be deemed to be part of the hereditament; but (*b*) subject as aforesaid, no account shall be taken of the value of any plant or machinery on the premises. For the purposes of this case, process plant was taken as being outside the class mentioned in the Third Schedule (*a*). The Court of Appeal first indicated that the company were in rateable occupation of the mill and that their beneficial occupation could not be confined to their occupation of it to house a few chattels, as they were in occupation of the premises in respect of the preservation of the process machinery. The Court then considered what was the effect of the section, and explained that its intention was to remedy a complaint that had been raised, that occupiers of premises where machinery was used for the purposes of the business were being rated in respect of machinery which was not, strictly speaking, part of the hereditament, but was machinery which any tenant would have to instal as tenant's fixtures; that is to say, the object of the section was to alter for the benefit of industrial ratepayers the law as laid down in a series of cases culminating in Kirby *v.* Hunslet Union Assessment Committee (1906, A.C. 43).

We give the headnote to that case, "Tenant's machinery placed in a factory and used therewith for the business of the factory, whether it be affixed to the freehold or not, may be taken into consideration so as to increase the amount in assessing the factory to the poor rate." The Court then held that section 24, subsection (1) (*b*), ought not to be interpreted as meaning that where the owner was in beneficial occupation of a factory for the purpose of keeping it in order, that he might either resume work or sell the fixtures, he was not in beneficial occupation for that purpose, nor was it the intention of the statute to alter the law as laid down in Staley *v.* Castleton Overseers (5, B. and S. 505), and Harter *v.* Salford Overseers (6, B. and S. 591).

In the first of the above cases the facts were somewhat similar to those in the case before the Court: a cotton mill, owing to depression in the trade, was no longer worked, but maintained at some expense as a factory with its machinery in a fit state for working when the trade should revive, and it was held that it should be rated upon its annual value as a storehouse for the machinery in it, and not upon an estimate of the rent which might fairly be expected for it if let for a reasonable term of years with the prospect of improvement in value. In the second case, the business in a mill had been given up, with no intention of resuming it, but the machinery, which was in the nature of tenant's fixtures, remained in it, having been advertised for sale, and it was held that the mill was only rateable upon its annual value as a warehouse for the machinery and things in it.

The Court in the present case, therefore, allowed the appeal from the Divisional Court, with a direction that it would then be for the Assessment Committee in the first instance to make an estimate of the rateable value of the premises as occupied by the company for the purpose of warehousing and keeping in order the process machinery, together with a few other chattels mentioned in the case.

TUNNEL SYSTEM FOR CENTRAL LONDON

In connection with his suggested solution of the traffic problem in central London by means of a system of tunnels, Mr. John Murray, F.R.I.B.A., writes:—

"It appears to be evident that my recent suggestion of a 'tunnel' in central London does not convey sufficiently to some authorities and critics my full and true conception, due perhaps to the word 'tunnel' being practically a misnomer in these modern days. If the route were named an 'illuminated sub-road' it might be more explicit and generally understood, especially by one critic who has described it as a 'grim' solution.

"The sub-road I visualise would be attractively decorated and brightly illuminated by its own independent sub-electric power station at a cost of about ¼d. a unit, and it would appear as a bright, cheerful route, quite as attractive and better ventilated than many existing West End hotels, restaurant and entertainment halls that now possess no daylight, and are habitually used for feasting and entertaining by day and night. The result could produce a sub-vehicular traffic route that would be superior to any now existing, and I conceive it would be welcomed by the public to drive along in preference to the streets which are so frequently dull, wet and unattractive.

"The new sub-road brightly illuminated by the aid of our electrical experts would, I submit, very soon induce the uninitiated public to abandon past shibboleths and exclaim, 'What an unexpected revolution.' But, alas! popular preconceived ideas die hard in this conservative country. In this connection I recall the opposition, the delay encountered, and the slow accomplishment of the Suez Canal, the Panama Canal, the Manchester Ship Canal, the Mersey Tunnel, the two existing Thames tunnels, the London Tube Railways, the production of a real remedy for our present central London traffic problem, and the provision of adequate protection from air raids.

"I am informed that all the clay excavated for the tunnel or sub-road that I suggest can, by a new simple process, be transformed into bricks, tiles and other things on the spot in a few days without burning. If this be accomplished it will prove true my prophetic words that there is a 'gold mine' lying under London which is only now being discovered. Some time ago I suggested a similar sub-road from central London to the Croydon aerodrome, but it is still dormant. And what a boon such sub-roads would be in case of war!"

RATES OF WAGES IN THE BUILDING TRADE

AS AND FROM 1st JANUARY, 1936.

[Every endeavour is made to ensure accuracy, but we cannot be responsible for errors.]

	Crafts-men.	Lab-ourers.		Crafts-men.	Lab-ourers.		Crafts-men.	Lab-ourers.		Crafts-men.	Lab-ourers.
Aberdare	1/6	1/1½	Clitheroe	1/6½	1/2	Isle of Thanet	1/4	1/-	Sawbridgeworth	1/4½	1/0½
Abergavenny	1/6	1/1½	Cobham	1/5	1/0½	Isle of Wight	1/3½	11½	Saxmundham	1/2½	11
Abingdon	1/5	1/0½	Colchester	1/5½	1/1½	Keighley	1/6½	1/2	Scarborough	1/6	1/1½
Accrington	1/6½	1/2	Colwyn Bay	1/5½	1/1½	Kenilworth	1/6½	1/2	Selby	1/6½	1/2
Aldeburgh	1/2½	11	Congleton	1/6	1/1½	Kettering	1/6	1/1½	Sevenoaks	1/5	1/0½
Aldershot	1/3½	11½	Coventry	1/6½	1/2	Kidderminster	1/5½	1/1½	Sheerness	1/4	1/-
Alfreton	1/6½	1/2	Cranbrook	1/3	11½	King's Lynn	1/4	1/-	Sheffield	1/6½	1/2
Alnwick	1/6	1/1½	Cranleigh	1/3½	11½	Kirkham	1/6½	1/2	Shipley	1/6½	1/2
Altrincham	1/6½	1/2	Crawley	1/4½	1/0½	Knowle	1/6	1/1½	Shoeburyness	1/6	1/1½
Amble	1/6	1/1½	Crewe	1/5½	1/1½	Lancaster	1/6½	1/2	Shoreham	1/5	1/0½
Amersham	1/4½	1/0½	Cromer	1/3½	11½	Leamington	1/6	1/1½	Shrewsbury	1/5½	1/1½
Ammanford	1/6½	1/2	Crowborough	1/4½	1/0½	Leatherhead	1/5½	1/1½	Sittingbourne	1/3½	11½
Andover	1/3½	11½	Cuckfield	1/4½	1/0½	Leeds	1/6½	1/2	Skegness	1/5½	1/1½
Ardingley	1/4½	1/0½	Darlington	1/6½	1/2	Leicester	1/6½	1/2	Sleaford	1/5	1/0½
Arundel	1/4	1/0	Darwen	1/6½	1/2	Leighton Buzzard	1/3½	11½	Slough	1/5½	1/1½
Ascot	1/4½	1/0½	Dawlish	1/5	1/0½	Letchworth	1/5	1/0½	Southampton	1/5½	1/1½
Ashby-de-la-Zouch	1/5	1/0½	Deal	1/4	1/-	Lewes	1/3	11½	Southend-on-Sea	1/6	1/1½
Ashford (Kent)	1/3½	11½	Denbigh	1/5	1/0½	Lichfield	1/5½	1/1½	Southport	1/6½	1/2
Ashford (Middlesex)	1/5½	1/1½	Derby	1/6½	1/2	Lincoln	1/6½	1/2	South Shields	1/6½	1/2
Ashington	1/6	1/1½	Devizes	1/3*	11½	Littlehampton	1/4	1/-	Spalding	1/4	1/-
Ashstead	1/5	1/0½	Dewsbury	1/6½	1/2	Liverpool	1/8†	1/3½	Stafford	1/6	1/1½
Ashton-under-Lyme	1/6½	1/2	Didcot	1/4½	1/0½	Llandudno	1/5½	1/1½	Staines	1/5½	1/1½
Aylesbury	1/4	1/0	Diss	1/3	11½	Llanelly	1/6½	1/2	Stamford	1/5	1/0½
Aylsham	1/3½	11½	Doncaster	1/6½	1/2	London:			Stevenage	1/5	1/0½
Bagshot	1/3½	11½	Dorchester	1/4*	1/-	12 m. radius	1/8*	1/3	Stockport	1/6½	1/2
Banbury	1/4	1/0	Dorking	1/4½	1/0½	12-15 m. radius	1/7½*	1/2‡	Stockton-on-Tees	1/6½	1/2
Barnsley	1/6½	1/2	Dover	1/4	1/-	Long Eaton	1/6½	1/2	Stoke-on-Trent	1/6½	1/2
Barnstaple	1/4½	1/0½	Dovercourt	1/4½	1/0½	Longton	1/6½	1/2	Stourbridge	1/6	1/1½
Barrow-in-Furness	1/6½	1/2	Driffield	1/5	1/0½	Loughborough	1/6½	1/2	Stourport	1/5½	1/1½
Barry	1/6½	1/2	Droitwich	1/5½	1/1½	Louth	1/5	1/0½	Stowmarket	1/3	11½
Basingstoke	1/4	1/0	Dudley	1/6½	1/2	Lowestoft	1/4½	1/0½	Stratford-on-Avon	1/5	1/0½
Bath	1/5½	1/1½	Dunstable	1/4½	1/0½	Luton	1/6	1/1½	Stroud	1/5†	1/0½
Batley	1/6½	1/2	Durham City	1/6½	1/2	Macclesfield	1/6	1/1½	Sunderland	1/6½	1/2
Beaconsfield	1/4½	1/0½	Eastbourne	1/5½	1/1½	Maidenhead	1/5	1/0½	Sutton Coldfield	1/6½	1/2
Beccles	1/3	11½	E.Glam.(Mon.Val.)	1/6	1/1½	Maidstone	1/5	1/0½	Swaffham	1/2½	11
Bedford	1/5½	1/1½	East Grinstead	1/4½	1/0½	Malvern	1/5	1/0½	Swanage	1/4½*	1/0½
Berkhamsted	1/4	1/-	Edenbridge	1/4½	1/0½	Manchester	1/6½	1/2	Swansea	1/6½	1/2
Berwick	1/5½	1/1½	Ely	1/3	11½	Manningtree	1/3	11½	Swindon	1/5*	1/0½
Beverley	1/6½	1/2	Epping	1/5½	1/1½	Mansfield	1/6½	1/2	Tamworth	1/6	1/1½
Bexhill-on-Sea	1/4½	1/0½	Exeter	1/5½†	1/1½	March	1/3½	11½	Taunton	1/4½	1/0½
Bideford	1/4½	1/0½	Exmouth	1/4½	1/0½	Margate	1/4	1/-	Tenterden	1/3½	11½
Biggleswade	1/4	1/-	Fakenham	1/3	11½	Market Harborough	1/5½	1/1½	Tewkesbury	1/5*	1/0½
Billericay	1/4	1/-	Falmouth	1/5	1/0½	Matlock	1/5	1/0½	Thetford	1/3	11½
Birchington	1/4	1/-	Fareham	1/4	1/-	Melton-Constable	1/2½	11	Thorpe Bay	1/6	1/1½
Birkenhead	1/8‡	1/3½	Faversham	1/3½	11½	Melton Mowbray	1/5½	1/1½	Todmorden	1/6½	1/2
Birmingham	1/6½	1/2	Felixstowe	1/5	1/0½	Merthyr Tydfil	1/6	1/1½	Tonbridge	1/5	1/0½
Bishop Auckland	1/6	1/1½	Filey	1/5	1/0½	Middlesbrough	1/6½	1/2	Torquay	1/6	1/1½
Bishops Stortford	1/5	1/0½	Fleetwood	1/6½	1/2	Middleton	1/6½	1/2	Totnes	1/4½†	1/0½
Blackburn	1/6½	1/2	Flint	1/6	1/1½	Middlewich	1/5½	1/1½	Trowbridge	1/3½*	11½
Blackpool	1/6½	1/2	Folkestone	1/4	1/-	Milford Haven	1/4½	1/0½	Truro	1/3½	11½
Blyth	1/6½	1/2	Frinton-on-Sea	1/4½	1/0½	Morecambe	1/6½	1/2	Tunbridge Wells	1/5	1/0½
Bognor Regis	1/4	1/-	Frome	1/3½*	11½	Morley	1/6½	1/2	Uppingham	1/5	1/0½
Bolton	1/6½	1/2	Gainsborough	1/5½	1/1½	Mundesley	1/3½	11½	Uttoxeter	1/5	1/0½
Bournemouth	1/5½	1/1½	Gateshead	1/6½	1/2	Nantwich	1/5½	1/1½	Wakefield	1/6½	1/2
Bracknell	1/4	1/-	Gillingham	1/5	1/0½	Newark-on-Trent	1/5½	1/1½	Walsall	1/6½	1/2
Bradford	1/6½	1/2	Glossop	1/6½	1/2	Newbury	1/4	1/-	Walsden	1/6½	1/2
Bradford-on-Avon	1/3½*	11½	Gloucester	1/5½†	1/1½	Newcastle-on-Tyne	1/6½	1/2	Walton-on-Naze	1/4½	1/0½
Braintree	1/4½	1/0½	Godalming	1/4½	1/0½	Newcastle-u-Lyme	1/6½	1/2	Ware	1/5½	1/1½
Brentwood	1/6	1/1½	Goole	1/5½	1/1½	New Forest	1/3½	11½	Warminster	1/3½*	11½
Bridgwater	1/4½	1/0½	Gosport	1/5½	1/1½	Newmarket	1/4½	1/0½	Warrington	1/6½	1/2
Bridlington	1/6	1/1½	Grantham	1/5	1/0½	Newport, Mon.	1/6½	1/2	Warwick	1/6	1/1½
Brighouse	1/6½	1/2	Gravesend	1/6	1/1½	Newport Pagnell	1/3½	11½	Wellingborough	1/6	1/1½
Brighton	1/5½	1/1½	Gt. Yarmouth	1/4½	1/0½	Northampton	1/6½	1/2	Wells (Norfolk)	1/2½	11
Bristol	1/6½	1/2	Grimsby	1/6½	1/2	Norwich	1/6	1/1½	Welwyn	1/5½	1/1½
Broadstairs	1/4	1/-	Guildford	1/4½	1/0½	Nottingham	1/6½	1/2	Welwyn Gar. City	1/6½	1/2
Bromsgrove	1/5½	1/1½	Guilsborough	1/5	1/0½	Nuneaton	1/6½	1/2	West Bromwich	1/6½	1/2
Buckley	1/6½	1/2	Halifax	1/6½	1/2	Oakham	1/5	1/0½	Westcliff-on-Sea	1/6	1/1½
Bungay	1/2½	11	Hanley	1/6½	1/2	Oldham	1/6½	1/2	Weston-super-Mare	1/5½	1/1½
Burnham-on-Crouch	1/3	11½	Harpenden	1/5	1/0½	Ormskirk	1/6½	1/2	Weybridge	1/5	1/0½
Burnley	1/6½	1/2	Harrogate	1/6½	1/2	Oxford	1/6	1/1½	Weymouth	1/4*	1/-
Burslem	1/6½	1/2	Hartlepools	1/6½	1/2	Oxted	1/3½	11½	Whitby	1/5½	1/1½
Burton-on-Trent	1/6½	1/2	Harwich	1/4½	1/0½	Paignton	1/6	1/1½	Whitstable	1/4	1/-
Bury	1/6½	1/2	Haslemere	1/3½	11½	Peterborough	1/6	1/1½	Widnes	1/6½	1/2
Bury St. Edmunds	1/4	1/-	Hastings	1/4	1/0	Plymouth	1/6½†	1/2	Wigan	1/6½	1/2
Buxton	1/6	1/1½	Hatfield	1/5½	1/1½	Pontypridd	1/6	1/1½	Wigton	1/5	1/0½
Byfleet	1/4½	1/0½	Haywards Heath	1/4½	1/0½	Portsmouth	1/5½	1/1½	Willington	1/6	1/1½
Cambridge	1/6	1/1½	Hednesford	1/6	1/1½	Port Talbot	1/6½	1/2	Wilmslow	1/6½	1/2
Canterbury	1/4	1/-	Hemel Hempstead	1/5½	1/1½	Preston	1/6½	1/2	Winchester	1/4½	1/0½
Cardiff	1/6½	1/2	Henley	1/4½	1/0½	Pulborough	1/3	11½	Windermere	1/5	1/0½
Carlisle	1/6½	1/2	Hereford	1/4½*	1/0½	Ramsgate	1/4	1/-	Windsor	1/5½	1/1½
Carnforth	1/6½	1/2	Herne Bay	1/4	1/0	Reading	1/5½	1/1½	Wisbech	1/3½	11½
Castleford	1/6½	1/2	Hertford	1/5½	1/1½	Redditch	1/5½	1/1½	Witham	1/4½	1/0½
Caterham	1/5	1/0½	Heysham	1/6½	1/2	Redhill	1/4½	1/0½	Woking	1/4½	1/0½
Chard	1/3½*	11½	Hitchin	1/5	1/0½	Reigate	1/4½	1/0½	Wokingham	1/4½	1/0½
Chatham	1/5	1/0½	Hoddesdon	1/5½	1/1½	Retford	1/5	1/0½	Wolverhampton	1/6½	1/2
Chelmsford	1/5	1/0½	Holt	1/2½	11	Rickmansworth	1/6	1/1½	Woodbridge	1/3½	11½
Cheltenham	1/5	1/0½	Horley	1/4	1/-	Ripon	1/5	1/0½	Worcester	1/5½	1/1½
Chepstow	1/5½	1/1½	Horsham	1/4	1/-	Rochdale	1/6½	1/2	Workington	1/5	1/0½
Chertsey	1/5	1/0½	Horwich	1/6½	1/2	Rochester	1/5	1/0½	Worksop	1/5½	1/1½
Chester	1/6½	1/2	Huddersfield	1/6½	1/2	Rugby	1/6½	1/2	Worthing	1/4	1/-
Chesterfield	1/6½	1/2	Hull	1/6½	1/2	Saffron Walden	1/3	11½	Wrexham	1/6	1/1½
Chichester	1/4	1/-	Hunstanton	1/3	11½	St. Albans	1/6	1/1½	Wroxham	1/4	1/-
Chorley	1/6½	1/2	Huntingdon	1/3½	11½	St. Helens	1/6½	1/2	Wycombe	1/5	1/0½
Cirencester	1/4*	1/-	Ilfracombe	1/4½	1/0½	St. Neots	1/3½	11½	Wymondham	1/3	11½
Clacton	1/4½	1/0½	Ingatestone	1/4	1/-	Salisbury City	1/3½*	11½	Yeovil	1/4½*	1/0½
Cleveleys	1/6½	1/2	Ipswich	1/5½	1/1½	Salisbury Plain	1/3½*	11½	York	1/6½	1/2

* Painters 1d. less than other Craftsmen. † Painters ½d. less than other Craftsmen. ‡ Plasterers 1/9.

For Building Trade Wages in Scotland see page 125.

CONTRACTS OPEN

For some contracts still open, but not included in this list, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender, that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender, unless stated to the contrary.

The date given is the latest date when the tender, or the names of those willing to submit tenders, may be sent in, the name and address at the end is the person from whom or place where quantities, forms of tender, etc., may be obtained.

Following is a list of abbreviations:—Borough Surveyor, B.S.; Borough Engineer, B.E.; District Surveyor, D.S.; Town Clerk, T.C.; County Engineer, C.E.; County Surveyor, C.S.; Surveyor, S.; Engineer, E.

BUILDING, PAINTING, ELECTRIC LIGHTING, HEATING, etc.

JANUARY 13.

Beccles.—Houses.—16 and 6 bungalows at Castle-lane, for T.C. B.S. Dep. £3 3s.

***Birmingham.**—Engineering.—Heating and hot water service in connection with Quinton Hall, for T.C. Public Assistance Officer, 102, Edmund-st. Dep. £1 1s.

***Birmingham.**—Electrical Work.—In connection with Quinton Hall, for T.C. Public Assistance Officer, 102, Edmund-st. Dep. £1 1s.

***Birmingham.**—Building Work.—In connection with Quinton Hall, for T.C. Public Assistance Officer, 102, Edmund-st. Dep. £3 3s.

Cardiganshire.—Works.—At Cwrtnewydd School House—renovating and decorating interior, and Llanfair School House—installing domestic hot water service, drainage and alterations, for E.C. Rhys Jones, F.R.I.B.A., County Architect, Llandyssul.

Chester.—Alterations.—And additions at Macclesfield County high school for girls, for C.C. F. Anstead Browne, F.R.I.B.A., County Architect, The Castle, Chester. Dep. £1 1s.

Chorley.—Houses.—31, at three sites, for R.D.C. W. Cotterill, S., High-st., Chorley. Dep. £2 2s.

Glamorgan.—Conversion.—Of boys' dept. of Pontardulais school in senior mixed dept., and erection of caretaker's house, for C.C. Clerk, Cardiff.

Hemsworth.—Bungalows.—20, on Wakefield-rd., Fitzwilliam, for U.D.C. Alva Wright, clerk. Dep. £2 2s.

Kiveton Park.—Building.—10 houses at Woodsetts; erection of Council chamber and alterations to Council offices, Kiveton Park; alterations to 4, Laughton-rd., Dinnington (horseman's house); supply of fireplaces, sanitary goods, ironmongery, etc., for 10 houses, Woodsetts; electric wiring to Council offices, for R.D.C. S. Dep. £2 2s. each.

London.—Dwellings.—110 dwellings on Branch-rd. site, for Stepney B.C. Adshead & Ramsey, FF.R.I.B.A., 46, Great Russell-st., W.C. Dep. £10.

Lowestoft.—Houses.—10, at Fir-ln. housing site, for T.C. S. W. Mobbs, A.R.I.B.A., B.S. Dep. £2 2s.

Newquay.—Houses.—Fences, paths, etc., at St. Columb Minor, for U.D.C. C. W. Walters, E. and S. Dep. £5 5s.

Oldmeldrum.—Houses.—Plaster, plumber and painter works, for T.C. Tawse & Allan, 10, Bon Accord-sq., Aberdeen.

***Peppard (Oxon).**—Alterations.—And additions to kitchen block at Berks and Bucks Joint Sanatorium. W. Roland Howell, F.R.I.B.A., 17, Blagrave-st., Reading. Dep. £1 1s.

Richmond.—Demolition.—Of 3 blocks of property in Lower Richmond-rd., for Surrey C.C. E., Kingston-upon-Thames. Dep. £2 2s.

Richmond.—Erection.—Of lock-up shop and out-buildings, for Surrey C.C. C.E., Kingston-upon-Thames. Dep. £2 2s.

Tadcaster.—Casual Wards.—At County Institution, for West Riding C.C. West Riding Architect, County Hall, Wakefield.

Tipton.—Houses.—94, at Tibbington housing estate (Section 2), for U.D.C. Charles R. Gallie, A.R.I.B.A., Housing Director. Dep. £2 2s.

Winchester.—Houses.—One pair of 2-story and one pair of bungalows at Sutton Scotney, nr. Winchester, for R.D.C. W. R. Cowell, S., "Ryelands," Hedge End, Southampton. Dep. £2 2s.

JANUARY 14.

Brighton.—Rebuilding.—Of Nos. 200 and 201, Western-rd. and No. 10, Imperial-arcade, for C.B. Thomas Garrett & Son, F./A.R.I.B.A., 34, Ship-st. Dep. £2 2s.

Derby.—Extensions.—To Borough Treasurer's Office, Babington-ln., for Audit and Finance Committee, for T.C. C. H. Aslin, F.R.I.B.A., Borough Architect, Gower-st. Dep. £1 1s.

East Looe.—Alterations.—And additions to Saintation Inn, for D. Venning & Son, Ltd., Liskeard. G. Lester Cook, L.R.I.B.A., East Looe.

Essex.—Erection.—Of Brightlingsea senior school, for C.C. J. Stuart, F.R.I.B.A. Dep. £2 2s.

Essex.—Erection.—Of Witham senior school, for C.C. J. Stuart, F.R.I.B.A., Chelmsford. Dep. £2 2s.

Essex.—Erection.—Of Dagenham Beam Bridge junior school, for C.C. J. Stuart, F.R.I.B.A., Chelmsford. Dep. £2 2s.

Essex.—Erection.—Of Rochford senior school, for C.C. J. Stuart, F.R.I.B.A., Chelmsford. Dep. £2 2s.

Leeds.—Demolition.—Of property in Regent-st., Myrtle-st., etc., and Garden-st., for T.C. J. E. Acfield, City E.

Manchester.—Police section box.—At Walter-st., Harpurhey, for T.C. City Architect. Dep. £1 1s.

Mansfield.—Construction.—Contract 1.—Of two hard tennis courts, complete with surrounds and equipment. Contract 2.—Supply of playground equipment, Bull Farm recreation ground, for T.C. B.E. and S. Dep. £1 1s.

Omagh.—Reconditioning.—Of public offices at post office, for Government of Northern Ireland. Secretary, Ministry of Finance (Room 128), May-st., Belfast.

South Cambridgeshire.—Repairs.—To 6 cottages at The Brickyard, West Wickham, for R.D.C. H. Hales, Clerk, County Hall, Hobson-st., Cambridge.

Southport.—Erection.—Of timber bungalows at Ainsdale bathing centre, for T.C. B.E. Dep. £1 1s.

Thame.—Houses.—5 pairs, at Horton-av. site, Queen's-rd. housing estate, for U.D.C. B. Ll. Stephenson, architect. Dep. £2.

JANUARY 15.

Barnes.—Erection.—Of block of 4 flats at Lime-av., for T.C. B.E. and S., Mortlake, S.W.14. Dep. £5.

Belfast.—Repairs.—To labourers' cottages, for R.D.C. R. G. Jackson, Clerk.

Chalfont St. Peter.—Demolition.—Of shop and premises at corner of Market-pl. and High-st., for Bucks C.C. Divisional S., Abbeyfield, Windsor-rd., Slough.

Dunstable.—Interior and Exterior Repairs, etc.—To 50 houses on Garden-rd. Estate, for T.C. T.C. Dep. £1 1s.

Maryport.—Houses.—25, at Pecklewell housing site, for U.D.C. R. Williams, S.

***North London.**—Erection.—Of 500-600 houses. Hilbery Chaplin, Ltd., 4, Russell-parade, Golders Green, N.W.11. Dep. £2 2s.

Nuneaton.—Lodge.—At Nuneaton Cemetery, Oaston-rd., for T.C. B.S. Dep. £1 1s.

Portsmouth.—Erection.—Of 100 houses at Wymering-ln., Wymering, for T.C. T.C. Dep. £2 2s.

Swadlincote.—Greenhouse.—Hot frames and other incidental works at Cappy-ln. Farm, Castle Gresley, for U.D.C. Geo. A. Taylor, E. and S. Dep. £1 1s.

Swindon.—Erection.—Of school at Clifton, for T.C. Ralph, Son & Proude, architects, Leader's-bldgs., King-st., Wigan. Dep. £2 2s.

JANUARY 16.

Berkshire.—Erection.—Of school at Calcot, for E.C. Education Secretary, Reading. Dep. £2 2s.

Birmingham.—Installation.—Of hot water heating and cold water supplies, and electric lighting and power supply, at Billesley Community Hall, Trittiford-rd., Billesley, for T.C. Herbert J. Manzoni, City E. Dep. £2.

Bristol.—Construction.—Of 5 sub-stations, for T.C. A. J. Newman, Chief E. and General Manager, Colston-av.

Edinburgh.—School.—At Craigmillar, for T.C. E. J. MacRae, F.R.I.B.A., City Architect.

Glasgow.—Houses.—39, at Landressy-st., for T.C. J. L. Mackenzie, T.C.

***Hertford.**—Alterations.—To dining hall, etc., at "Western House" Public Assistance Institution, Ware, for C.C. Elton Longmore. Dep. £1 1s.

***Hertfordshire.**—Extension.—Of casual wards at "Shrodells" Public Assistance Institution, Watford, for C.C. Elton Longmore. Dep. £3 3s.

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Manchester.—Erection.—Of domestic science block and Styal cottage homes, Cheshire, for E.C. S. Dep. £2 2s.

Salford.—Internal Structural Alterations.—To educational premises, for T.C. Director of Education, Education Office, Chapel-st.

JANUARY 17.

Bangor (North Wales).—Painting.—Of 197 houses, for T.C. B. Price Davies, F.S.I., L.R.I.B.A., architect.

Chesterfield.—Assembly Hall.—At "Peter Webster" school, Whittington Moor, for T.C. Wilcockson & Cutts, architects, 12, Saltergate, Chesterfield. Dep. £2 2s.

***Coventry.**—Alterations.—And additions to Municipal Art School, for T.C. Director of Education. Dep. £1 1s.

Dagenham.—Erection.—Of municipal offices, for U.D.C. E. and S. Dep. £5 5s.

Gainsborough.—Iron Fencing.—For R.D.C. E. Donelly, S., 17, Morley-st.

Halifax.—Works.—In connection with erection of Halifax Children's Holiday Home at Norland, for Children's Welfare League.—C. F. L. Horsfall & Son, architects and surveyors, Lord-st. Chambers.

Liverpool.—Sub-stations.—For T.C. Land Steward and Surveyor.

Newton Abbot.—Pump House.—At Jetty Marshlane, for Torquay T.C. N. G. Elliott, Water E., Torquay.

***Northampton.**—Erection.—Of school of arts and crafts in St. George's-av., for E.C. Keightley Cobb, L.R.I.B.A., 46, Hazelwood-rd. Dep. £5 5s.

Nottingham.—Pavilion.—In Victoria Embankment, for T.C. R. M. Finch, City E. and S. Dep. £2.

Runcorn.—Houses.—Three pairs of A.4 type, and two blocks each comprising three A.3 type houses and four flats on Stenhills Cres. sites; one block comprising three A.3 type houses and four flats on Trentham-st. site; and one block comprising three A.3 type and four flats on Brackley-st. site, with drains, footpaths, fencing, for U.D.C. A. B. Cunningham, E. and S. Dep. £3 3s.

Tottenham.—Demolition.—Of existing buildings and erection of suntrap special school, Sea Front, South Hayling, Hants, for E.C. J. H. Smyth, F.S.I., 798, High-rd. Dep. £3 3s.

***Warwick.**—Erection.—Of library at Shirley, nr. Solihull, for C.C. A. C. Bunch, County Architect, Dep. £2 2s.

Wrexham.—Flats.—44, at Baron's-rd., for T.C. Lockwood, Abercrombie & Saxon, Cathedral Chambers, St. Werburgh-st., Chester. Dep. £2 2s.

JANUARY 18.

Belfast.—Electrical Installations.—For T.C. City Electrical E. and Manager, East Bridge-st., Belfast. Dep. £1 1s.

Hull.—Installation.—Of low pressure hot water heating for infants' dept. of Cavendish-rd. school, for T.C. D. Harvey, A.R.I.B.A., City Architect. Dep. £1 1s.

Hull.—Garages.—And workshop at mental hospital, Wellerby, for T.C. D. Harvey, A.R.I.B.A., City Architect. Dep. £1 1s.

***Luton.**—Erection.—Of elementary school at Hart Hill, for B.C. T.C. Dep. £5.

Macclesfield.—Houses.—183, working-class, on Moss-ln. housing estate, for T.C. Edward Hamson, architect. Dep. £2.

Mallow.—Installation.—Of heating, plumbing, sterilising, kitchen and refrigerating services and equipment at New County Hospital, for North Cork Board of Health. D. C. Murphy, secretary, County Hospital. Dep. £20.

Middlesbrough.—Extensions.—And alterations to X-ray ward at Holgate Hospital, for T.C. S. E. Burgess, B.E., Architect and S. Dep. £1 1s.

New Pitsligo.—School Building.—And reconstruction at schools, for Aberdeen County E.C. G. M. Hay, architect, 177, Union-st., Aberdeen.

Ottershaw (Surrey).—Alterations.—And additions to some of the existing hospital buildings and erection of nurses' home, laundry, etc., for Joint Hospital Board. Clerk, Bagshot. Dep. £5 5s.

Rugby.—Houses.—34, at Ryton-on-Dunsmore, near Coventry, for R.D.C. W. E. B. Bunker, S. Dep. £2 2s.

JANUARY 20.

Blandford.—Alterations.—And improvements to buildings at Municipal Buildings and Corn Exchange, for T.C. Cooper & Anstin, A/A.R.I.B.A., 51, Towngate-st., Poole. Dep. £2 2s.

Bolsover.—Police Headquarters.—For Derbyshire C.C. County Architect, County Offices, Derby. Dep. £2 2s.

Bradford.—Nurses' Home.—At St. Luke's Hospital, for T.C. City Architect. Dep. £2.

Bristol.—Additions.—To Ham Green Sanatorium, for T.C. Bernard & Son, 26, Orchard-st. Dep. £5 5s.

Cowes.—Houses.—10 three-bedroomed and 2 four-bedroomed, at Cowes, and 6 three-bedroomed, at East Cowes, with drains, footpaths, fencing, gates and other incidental work, for U.D.C. E. and S., A. E. Smith. Dep. £1 1s.

Epsom and Ewell.—Alterations.—And decorations in connection with conversion of part of Ewell Court House, Ewell, into health centre for Surrey C.C., for U.D.C. Norman Auty, E. and S. Dep. £1 1s.

Guildford.—Additional Classroom.—At Central School. Harvey-rd., for T.C. J. W. Hipwood, B.S. Dep. £1 1s.

Guildford.—Additional Classrooms.—At Westborough School, Southway-av., for T.C. L. R. Hiscock, F.R.I.B.A., Lloyds Bank-chams., High-st., Guildford. Dep. £2.

***West Ham.**—Erection.—Of electricity sub-station at Devonshire-rd., E.16, for C.B. W. Lionel Jenkins, B.E. Dep. £1.

***Wimbledon.**—Supply.—Delivery and laying 3-16 in. thick rubber flooring at Electricity Dept. new offices, for B.C. T.C.

JANUARY 22.

***Biggleswade.**—Erection.—Of 10 houses in parish of Stotfold, for R.D.C. F. C. Levitt, architect, Commerce House, Market-sq. Dep. £2 2s.

***Northern Ireland.**—Alterations.—And additions at 20a, Ormeau-ave. Secretary, Ministry of Finance (Room 128), May-st., Belfast. Dep. £1.

JANUARY 23.

***Dunstable.**—Erection.—Of conveniences on Whipsnade-rd., and convenience corner of Watling-st. and Houghton-rd., walls, etc., for T.C. B.S. Dep. £2 2s.

***Isleworth.**—Erection.—of brick built sub-station on children's playground, Northcote-av., for Heston and Isleworth B.C. S. H. Fowles, B. Elec. E., 11, Staines-rd., Hounslow.

JANUARY 24.

Durham.—Alterations.—And additions to Wearhead school, for C.C. F. Willey, F.R.I.B.A.

***Durham.**—Erection.—Of gymnasiums at Howlish Hall; The Haven, Hartlepool; Urpeth Lodge, Pelton; additional workshops, Elvet Station, Durham, for C.C. F. Willey, F.R.I.B.A.

JANUARY 25.

***Cheltenham.**—Café.—Additions to basket stores and surfacing car park and fencing in Sandford Park open-air pool, for T.C. B. and W.E. Dep. £2 2s.

***Stretford.**—Erection.—Of café and shelters in Longford Park, Edge-lane, for B.C. T.C. Dep. £2 2s.

JANUARY 27.

***Southall.**—Erection.—Of sports pavilion, lodge, etc., on Spikes Bridge playing field, for U.D.C. E. and S. Dep. £2 2s.

***Willesden.**—Erection.—Of sports pavilion, etc., on Gibbons recreation ground, for B.C. B.E. Dep. £5 5s.

JANUARY 28.

***Cambridge.**—Erection.—Of branch library in Ascham-rd., for T.C. B.E. and S. Dep. £2 2s.

Chelmsford.—Erection.—Of offices, etc., for T.C. Vincent J. Willis, B.E. and S. Dep. £5.

***Chelmsford.**—Erection.—Of Public Health Department Offices, etc., for T.C. B.E. and S. Dep. £5.

***Poole.**—Additions, etc.—To public baths, for B.C. T.C. Dep. £3 3s.

***Southend-on-Sea.**—Erection.—Of additional classrooms at Hinguar-st. school, for C.B. F. W. Smith, architect. Dep. £2.

JANUARY 29.

***Watford.**—Erection.—Of 120 houses on Leavesden Green estate, for B.C. B.E. Dep. £2 2s.

JANUARY 30.

***Derby.**—Erection.—Of employment exchange, for H.M.O.W. Room 65D, Third Floor, H.M. Office of Works, London, S.W.1. Dep. £1.

JANUARY 31.

***Cheltenham.**—(*a*) Alterations to Central schools, Gloucester-rd.; (*b*) erection of school adjoining Central schools, for E.C. L. W. Barnard & Partners, 03, Imperial-sq. Dep. £2 2s.

***Machynlleth.** — Erection. — Of pavilion, also offices, appertaining to the Eisteddfod, for Royal National Eisteddfod of Wales. B. Brooks Evans, Hon. Sec., Pavilion Committee.

Reigate.—Painting.—And decorating work at 4 schools, for T.C. B.E. and S.

FEBRUARY 1.

***Bexhill.**—Cottages.—29, in London-rd., for T.C. Wm. Pearce. Dep. £1 1s.

Douglas.—Houses.—168, on Ballacurry estate, Onchan, for T.C. B.E. and S. Dep. £5 5s.

***Ramsgate.**—Interior Decoration.—Of Royal Victoria Pavilion, for T.C. B.E.

FEBRUARY 3.

***Bexley.**—Erection.—Of library, conveniences and offices in Belle Grove-rd., Welling, for U.D.C. Surveyor, Bexleyheath. Dep. £10.

***Colchester.**—Additions.—To Myland Court and South Villa Blocks at Severalls Mental Hospital, for E.C. J. Stuart, F.R.I.B.A., Chelmsford. Dep. £2 2s.

FEBRUARY 4.

***Dartford.**—Extension.—To engine-house, alterations, etc., at Green-st. Green pumping station, for Metropolitan Water Board. Chief Engineer, 173, Rosebery-av., London, E.C.1. Dep. £10.

FEBRUARY 5.

***St. Albans.**—Alterations.—And additions to Sisters Infectious Hospital, Folly Mead, for T.C. City E. Dep. £2 2s.

***Springfield.**—Extension.—To garage and workshop at police headquarters, for Essex C.C. J. Stuart, F.R.I.B.A., Chelmsford. Dep. £2 2s.

FEBRUARY 11.

***Chester.**—Erection.—Of Altringham Grammar School, for C.C. F. Anstead Browne, F.R.I.B.A. Dep. £2 2s.

***Dagenham**—Erection.—Of temporary wooden building at Heathway, for Essex C.C. J. Stuart, F.R.I.B.A., Chelmsford. Dep. £1 1s.

APRIL 7.

Egypt.—Construction.—Of Mohammad Aly barrages and other subsidiary works, for Egyptian Government. Coode, Wilson, Mitchell & Vaughan-Lee, consulting engineers, 9, Victoria-st., London, S.W.1.

NO DATE.

Chilwell.—Demolition.—And complete removal within four months of certain buildings at Vehicle Reception Depot, for War Department. Garrison Engineer, Chilwell, Notts.

London. — Works. — Metal trades, electrical optical and scientific instrument trades, textile trades, foodstuffs, coal and coke trades, and building works, etc., for H.M. Army Contracts Dept. Director, Caxton House (West), Tothill-st., S.W.1.

Middleton.—Club Premises.—For British Legion. J. Brodie, A.R.I.B.A., 2, Lidget-hill, Pudsey, near Leeds. Dep. £1.

MATERIALS, etc.

JANUARY 13.

Chorley.—Road Materials.—For R.D.C. W. Cotterill, S.

Essex. — Road Materials. — For C.C. R. H. Buckley, C.S., Chelmsford.

JANUARY 14.

Montgomeryshire. — Supply.—Of science laboratory equipment at Newtown County intermediate schools, for E.C. Director of Education. Dep. £2 2s.

JANUARY 15.

Dublin.—Cement.—For T.C. Housing and Supplies Department, Exchange Buildings, Lord Edward-st. Charge 1s.

Prestwich.—Supply.—Of grates and sanitary fittings for proposed 18 houses off Rectory-lane, and 14 flats Bury Old-rd., for U.D.C. E. and S., Town Hall, Prestwich.

JANUARY 16.

Farnborough.—Road Materials.—For U.D.C. I. C. Jenkins, E. and S.

Plymouth.—Pipes.—For T.C. Water E., Stonehouse Town Hall.

JANUARY 17.

Gainsborough.—Road Materials.—For R.D.C. E. Donelly, S., 17, Morley-st.

Gainsborough.—Flags.—And kerbs, for R.D.C. E. Donelly, S., 17, Morley-st.

Leyton.—Supply.—Of school furniture to various schools, for B.C. J. H. Jacques, F.R.I.B.A., 61, West Ham-ln., E.15. Dep. £1

Manchester.—Supply.—Of 840 yds. of 12 in., and 15,000 yds. of 4 in. socket and spigot water pipes, for T.C. Chief E., Waterworks Offices.

JANUARY 18.

Gillingham, Kent.—Road Materials.—For T.C. John L. Redfern, B.E. and S.

Haslemere. — Shingle. — For U.D.C. A. G. Whitcher, Clerk.

Horsforth.—Granite.—For U.D.C. S.

Ilkeston.—Road Materials.—For T.C. B.S.

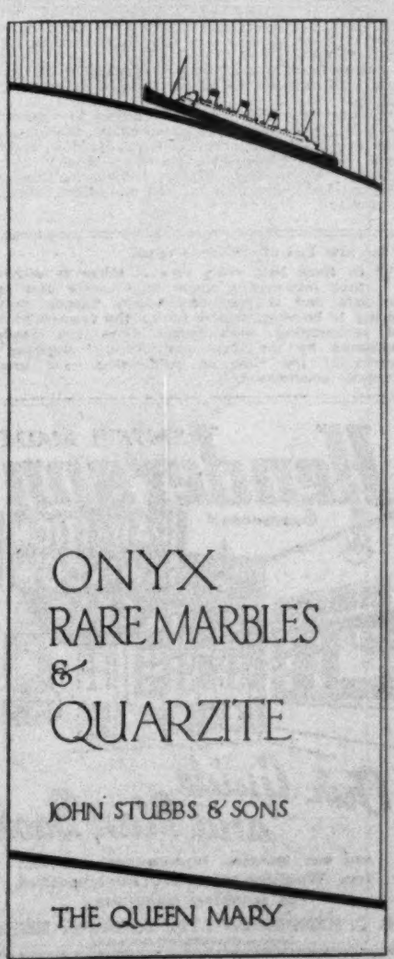
FEBRUARY 5.

***Battersea.**—Materials.—For B.C. T.C., Lavender-hill, S.W.11.

ENGINEERING, IRON AND STEEL.

JANUARY 13.

***Birmingham.**—Provision.—Of electric lift in connection with Quinton Hall, for T.C. Public Assistance Offices, 102, Edmund-st. Dep. £1 1s.



Cheshire.—Widening.—Of Lymm Dam bridge, carrying Warrington-Altrincham-rd. over reservoir outfall at Lymm, for C.C. G. E. Ashforth, S. and Bridgemaster, Watergate House, Watergate-st., Chester. Dep. £5 5s.

JANUARY 14.

Middlesex.—Reconstruction.—Of bridge carrying Hounslow-rd., Feltham, over Longford River, and improvement of junction of North Circular-rd. with Great North-rd., Finchley, for C.C. C.E. and S., 10, Great George-st., S.W.1. Dep. £2 2s. each contract.

JANUARY 16.

Birkenhead—Constructing.—Reinforced concrete bridge over Fender Brook, for T.C. B.E. and S. Dep. £2.

JANUARY 17.

Crayford. — Drainage. — For Barnehurst surface water drainage scheme, for U.D.C. D. M. MacTavish, E. and S. Dep. £5 5s.

JANUARY 18.

Bakewell.—Sewerage Works.—In parishes of Bonsall, Winster, Elton and Ivonbrook Grange, for R.D.C. Brady & Partington, engineers, Market-st., Chapel-en-le-Frith. Dep. £5.

JANUARY 20.

Hornchurch.—Engineering Plant.—At Suttons Institution, for Essex C.C. J. Stuart, F.R.I.B.A., County Architect, County Hall, Chelmsford. Dep. £2 2s.

JANUARY 22.

***Glamorgan.**—Provision.—And installation of laundry equipment at Colony for Mental Defectives to be erected at Hensol Castle, nr. Pontyclun. Clerk. Dep. £2 2s.

JANUARY 25.

Bath.—Construction.—Of Victoria Bridge (steel plate girder construction), and North Parade Bridge (reinforced concrete and stone construction), for T.C. City E. Dep. £5 5s.

ROAD, SEWERAGE AND WATER WORKS.

JANUARY 13.

Belfast.—Levelling Sites.—Making and resurfacing roads and paths at Saintfield-rd. end of Belfast Mental Hospital estate, for B.G. J. Harper, secretary, Boardroom.

Benfleet.—Making-up.—Of Elm-rd., Hadleigh, and Raymonds-drive and Kents Hill-rd. (North), Thundersley, for U.D.C. S., Kiln-rd., Thundersley. Dep. £2 2s.

Bournemouth. — Laying. — Of asphalt surface in various roads, for T.C. F. P. Dolamore, B.E. Dep. £1 1s.

Newquay.—Construction.—Of roads and sewers at St. Columb Minor, for U.D.C. C. W. Walters, E. and S.

Skegness.—Construction.—Of surface water sewerage and road works at Muirfield-drive, Brancaster-drive (West), Brancaster-drive (East) and Lumley-terr., back, and division of soil sewer at Lumley-terr., back, for U.D.C. H. Jenkins, E. and S.

Skegness.—Sewers.—Soil sewers, surface water sewers and road works at Lawn-av., Lawn-cres., Firbeck-av. South and Briar-close, for U.D.C. R. H. Jenkins, E. and S.

Wallasey.—Making.—Of various roads, for T.C. B.E.

JANUARY 14.

Altrincham.—Improvement.—And reconstruction of junction of Barrington-rd. with Stamford-st., for U.D.C. H. E. Brown, S. Dep. £2 2s.

Bootle.—Paving Works.—In Bulwer-st., from Knowsley-rd. to Bowles-st., for T.C. B.E.

Colwyn Bay.—Surfacing.—With bituminous material of Conway-rd., Colwyn Bay, for T.C. W. J. Dunning, E. and S.

Manchester.—Sewering.—Draining, paving, kerbing and flagging of roads on Roundwood area No. 1e. Northenden, for T.C. City E. Dep. £2 2s.

Seaton Delaval.—Laying.—Of 300 yds. of 6-in. sewer and works in connection therewith at Doublerow, for Seaton Valley U.D.C. S.

JANUARY 15.

Arbroath.—Excavation.—Bottoming and concrete paving, etc., works in connection with Victoria Park and West Links Promenades, for T.C. B.E., Gravesend, Arbroath. Dep. £1.

Potters Bar.—Making-up.—Of High Field-way, for U.D.C. E. Carr, E. and S. Dep. £1.

Sandwich.—Laying.—200 yds. 3-in. cast-iron gas main, and service, in Harnet-st., for T.C. J. Giles, manager, Gasworks. Dep. £1.

Sligo.—Laying.—Of 176 yds. of 6-in. sewer at Albert-rd., and 123 yds. of 6-in. sewer at Circular-rd., and incidental works, for T.C. T.C.

JANUARY 16.

Coulsdon and Purley.—Construction.—In Kingswood-way, Selsdon, of about 1,000 yds. of 9-in. stoneware pipe soil sewer, for U.D.C. S., Brighton-rd., Purley. Dep. £2 2s.

Newbury.—Making-up.—Of Cromwell-rd. (part of), for T.C. B.S.

Peterborough.—Construction.—Of surface-water sewers in various parts of city, for T.C. City E. Dep. £2 2s.

JANUARY 17.

Oxford.—Making-up.—Of streets, for T.C. J. F. Richardson, City E. and S. Dep. £2.

Sale.—Making-up.—Of Stokesay-rd. and Derbyshire-rd. South (part), for T.C. E. Bleakley. Dep. £2.

JANUARY 18.

Chislehurst and Sidcup.—Laying.—Of surface water sewers at Mottingham, for U.D.C. Edgar Lawes, E. and S., Council Offices, Main-rd., Sidcup. Dep. £1 1s.

Harrow.—Making-up various streets, for U.D.C. H. W. Rackham, S. Dep. £3 3s.

Lytham St. Annes.—Making-up.—Of Crosby-rd., Moorland-rd. and Windsor-rd., for Corporation. B.S.

West Bromwich.—Construction.—Of 1,000 yds. of stoneware, drain pipes and concrete tubes in Spouthouse-lane, for T.C. D. Ellison, B.E. and S.

West Bromwich.—Construction.—Of 1,200 yds. of concrete tube and stoneware pipe sewers at Hamstead and Spouthouse-lane, for T.C. D. Ellison, B.E. and S.

Public Appointments.

JANUARY 13.

***Huntingdon.**—Architectural Assistant (Temp.).—For C.C. T. H. Longstaff, Architect.

London.—Manager of Estates and Valuation Dept. and Chief Principal Assistant in office of City Surveyor.—For T.C. T.C., London, E.C.2.

Salop.—Architectural Assistant.—For C.C. A. G. Chant, A.R.I.B.A., Shrewsbury.

JANUARY 14.

Cheshire. — Two Temporary Architectural Assistants. — For C.C. F. Anstead Browne, F.R.I.B.A., Chester.

Edmonton. — Building Inspector (Temp.). — For U.D.C. E. and S.

Nottingham. — Quantity Surveyor. — For T.C. T.C.

Nottingham.—Junior Architectural Assistant.—For T.C. T.C.

South Shields. — Architectural Assistant. — For C.B. T.C.

JANUARY 15.

***Barking.**—Resident Engineer.—For B.C. T.C.

London.—Architectural Assistant (Tem.).—For Battersea B.C. T.C.

London.—Surveying Assistant (Temp.).—For Battersea B.C. T.C.

JANUARY 17.

***Exeter.**—Architectural Assistant (Temp.).—For T.C. J. Bennett, F.R.I.B.A.

Peterborough.—Junior Architectural Assistant.—For T.C. T.C.

Southend-on-Sea.—Quantity Surveying Assistant.—For C.B. Robt. H. Dyer, B.E.

***Southgate.**—Junior Engineering and Architectural Draughtsman.—For B.C. T.C., Palmers Green, N.13.

JANUARY 18.

***Croydon.**—Clerk of Works (Temp.).—For C.B. T.C.

Manchester.—Architectural Assistant.—For T.C. T.C.

Yorkshire (North Riding). — Architectural Assistant.—For C.C. Clerk, Northallerton.

JANUARY 20.

***Bucks.**—Draughtsman (Temp.).—For C.C. Clerk, Aylesbury.

***Camberwell.**—Two Architectural and Surveying Assistants (Temp.), for B.C. T.C., London, S.E.5.

***Leamington Spa.**—Building Inspector and Superintendent.—For T.C. B.E. and S.

JANUARY 21.

***Glamorgan.**—Architectural Assistant (Temp.), for C.C. Clerk.

JANUARY 22.

Oxford.—Building Surveyor and Clerk of Works.—For University Secretary. University Chest Office.

Sutton.—Architectural Assistant.—For T.C. T.C.

JANUARY 24.

***Essex.**—Architectural Assistant, for C.C. J. Stuart, F.R.I.B.A., Chelmsford.

***Walthamstow.**—Building Maintenance Assistant.—For B.C. Director of Education.

JANUARY 25.

***India.**—Civilian Consulting Architect.—Under Secretary of State, Military Dept., India Office, London.

JANUARY 31.

***Cheshire.**—Quantity Surveyor (Temp.), for C.C. F. Anstead Browne, F.R.I.B.A.

***Leeds.**—Studio Instructor.—For E.C. Director of Education.

FEBRUARY 1.

***Somerset.**—Assistant Architect.—For C.C. A. J. Toomer, Taunton.

NO DATE.

***London.**—Architectural and Engineering Assistants.—For Air Ministry. Secretary (W.B.9, Room 161), Adastral House, W.C.2.

***London.**—Clerk of Works.—For Marquess of Northampton's London Estates. Col. P. F. Storey, D.S.O., 19, Northampton-sq., E.C.1.

***London.**—Surveyors' Clerks.—For Air Ministry. Secretary (W.B.9, Room 161), Adastral House, W.C.2.

Palestine.—Quantity Surveyor.—For Crown Agents for the Colonies, 4, Millbank, London, S.W.1. M/3959.

Watford.—Quantity Surveyor.—For T.C. W. W. Newman, B.E.

***Watford.**—Clerk of Works, for extensions to Watford and District Peace Memorial Hospital. Wallace Marchment, F.R.I.B.A., 11, Stanley House, Larkhall, S.W.8.

CORRECTION.

In our issue of November 29 we stated that the tender of the Electrical Installations, Sunningdale, had been accepted for electric lighting installation in Ward Blocks D and F at the Central Middlesex County Hospital. This, we are informed, is incorrect, as the contract has been placed with Messrs. Pernot and Co., Ltd.

CURRENT & PROPOSED BUILDING WORK*

Abbreviations: T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.C. for Borough Council; P.C. for Parish Council; M.H. for Ministry of Health; M.T. for Ministry of Transport; C.B. for County Borough; B. of E. for Board of Education; M.W.B. for Metropolitan Water Board; B.S. for Borough Surveyor; B.E. for Borough Engineer; D.S. for District Surveyor; C. for Clerk; T.C. for Town Clerk; C.E. for County Engineer; C.S. for County Surveyor; S. for Surveyor; E. for Engineer.

Amroth.—Pembs C.C. construct concrete retaining wall on foreshore.

Audenshaw.—U.D.C. to erect crematorium at cost of £6,500.

Bath.—T.C. to obtain tenders for alterations to 9, Oxford-row.—Estimates to be obtained for pulling down 5-11 (odd), Wells-rd.—Plans by A. J. Taylor, F.R.I.B.A., for new central police station to cost £5,000 forwarded to Home Office for approval.—Preliminary plans for rebuilding of 44 and 45, Milsom-st. premises approved, and consent given to lessees to assign the lease of 44, Milsom-st. to Midland Bank, Ltd.—City E. to prepare estimate of cost of erecting houses on existing vacant sites at Dolemeads.

Boxhill-on-Sea.—Electricity Committee proposes establishment of electricity showroom and demonstration centre.

Blackpool.—R. Fielding & Sons, builders, Stanhope-rd. Works, propose 57 houses and 26 garages on land off Poulton Old-rd., Marton.—A. & G. R. Fletcher, builders, Roseway, Lytham-rd., propose 71 houses, Sunningdale-av.

Bognor Regis.—U.D.C. to build fire station, adjoining Town Hall.

Bolton.—D. Wynne-Thomas, F.R.I.B.A., 25, Wood-st., Bolton, been appointed architect by West Lancashire T.A. Association, St. George Building, 1, Lime-st., Liverpool, for headquarters on site of existing barracks in Fletcher-st.

Bradford.—T.C. to spend about £8,000 on transformation of open-air swimming pool in Lister Park, into "Lido."

Brierley Hill.—U.D.C. propose reconstruction of canal bridge in Level-st. Plans by R. H. J. Coomber, S., Albion-st.

Brighouse.—T.C. propose electricity showrooms. Plans by B.E.

Bromsgrove.—Droitwich and Redditch Joint Hospital Committee propose extensions to nurses' home. S. N. Cooke, F.R.I.B.A., architect, Sun-buildings, Bennett's Hill.—Bateman's, F.R.I.B.A., architects, Bennett's Hill, Birmingham, preparing plans for council house and public hall for U.D.C. Cost £21,000.

Burnham-on-Sea. — U.D.C. Library Committee recommends provision of public library.

Burnley.—Board of Management of the Victoria Hospital propose additional medical wards.

Cannock.—E.C. propose senior school for 500 scholars at Littleworth.—U.D.C. proposing fire station headquarters and houses for firemen, junction of Hednesford-rd. and Old Hednesford-rd. R. Blanchard, S.

Carnforth.—U.D.C. propose adaptation of premises, Market-st., for Council chambers, etc., at £2,644.

Chelmsford.—R.D.C. decided, subject to approval of M.H., to proceed with Council offices, London-rd., and appointed Mr. Archer, of Great Baddow, architect. Cost, £21,586.—T.C. approved:—Wenley, Ltd., lock-up shops and offices, London-rd., Taylor Walker, Ltd., shop with flat over and offices behind, Victoria-rd.

Chelmsford.—Marconi propose to erect laboratories, lecture rooms, etc., and experimental work adjoining existing premises at rear of Arbour-ln.—C. of E. senior school to accommodate 240 boys and 240 girls to be erected in Victoria-rd.

Chertsey.—Wilds, Fread & Robinson received permission from U.D.C. to erect 13 houses, Staines-ln., and 20 in St. Ann's-rd.

Chesterfield.—T.C. approved plans police buildings, Tontine-rd., for Watch Committee.—T.C. propose 192 houses, Bacons-ln.—T.C. approved plans for works and store, Pottery-ln., Whittington, Pearson & Co. (Chesterfield), Ltd.; stores and shop, Prospect-rd., Old Whittington, Chesterfield and District Co-operative Society, Ltd.; offices, Saltergate, Chesterfield R.D.C.—T.C. propose public conveniences Sheffield-rd., Newbold-rd., Hasland-rd., Derby-rd. and Lordsmill-rd.—T.C. purchased site adjoining municipal offices, Rose Hill, for central swimming baths.—T.C. to erect 24 bungalows for aged persons, Dunstan-ln.—Watch Committee approved scheme for block of flats, New Beetwell-st., for housing of fire brigade.

Clitheroe.—T.C. propose reconstruction of Pimlico-rd. bridge and widening approach roads, at £5,050.

Colne.—B.S. preparing plans for senior school to accommodate 360 scholars on land adjoining Primet schools.

Coventry.—T.C. approved:—21 houses, Rotherham-rd., and 50 houses, new streets off Rotherham-rd., S. V. Broadbridge, Ltd.; sub-station, Grayswood-av., corner of Allesley Old-rd., Corporation; sub-station, Westbury-rd., Corporation; sub-station, William Bristow-rd., Corporation; 12 houses, Forfield-rd., and 43 houses, Donnington-av., R. Prichard; 15 houses, Grayswood-av., and 7 houses, Allesley Old-rd., J. F. Ward; 34 houses, Queen Isabel's-av., A. W. Jervis; 84 houses (amended), new streets, "The Angel" Estate, Foleshill-rd., Old Farm Estates (Birmingham), Ltd.; factory and offices (amended), Holyhead-rd., Alvis Car & Engineering Co., Ltd.; additions to premises, 35, 36, 37 and 38, Hope-st., A. H Drinkwater; 43 houses (amended) and 3 houses, Thomas Lansdail-st., A. E. Gilks; foundry and offices (amended), Torrington-av., Lawton Tube Co., Ltd.; licensed premises, the "Hawthorn Tree" public-house, Broad-ln., Atkinsons Brewery, Ltd.; service depot, corner of Tile Hill-ln. and Fletchamstead Highway, Standard Motor Co., Ltd.; additions to houses, 44, 46, 48 and 50, Brook-st., and 1 to 6, Gilbert-st., Exors. of R. Thornelow; 58 houses, Honiton-rd., E. K. Yonell & Son, Ltd.; 20 houses, The Mount, 2 houses, corner of The Mount and St. Christian's-rd., Hodgson & Whittaker.—L.M.S. Railway propose alterations to railway station, at £80,000. Plans prepared Engineer's Office, Euston. W. K. Wallace, Chief Engineer.—Atkinson's Brewery, Ltd., to erect hotel, The Phantom Coach, on by-pass at Canley.

Dagenham.—U.D.C. to acquire compulsory Fairfield cottages, Becontree Heath.—Plans passed: P. J. James, 4 shops with dwelling accommodation, west side Whalebone-ln., Beacontree Heath; Ager & Baker, 38 houses, south side of Fordyke-rd.

Darlington.—No contracts yet placed for new hotel in Yarm-rd., for Newcastle Breweries, Ltd., Haymarket, Newcastle. J. Oswald & Sons, Bradburn's-chambs., Northumberland-st., Newcastle-on-Tyne, are the architects.—Housing and Town Planning Committee recommend B.S. draw up scheme for layout of estate for housing purposes.—Corporation approved scheme for erecting Town Hall at a cost of about £250,000. B.E.

Derbyshire.—E.C. propose elementary school at Duckmanton, at £4,000; and senior girls' school at Hollingwood. Plans by G. H. Widdows, F.R.I.B.A., County Architect, St. Mary's-gate, Derby. Tenders not yet invited.

Dewsbury.—Corporation approved alterations to public baths in Wellington-rd. at £4,200.

Doncaster.—Governors of Grammar School propose rebuilding school premises.—L.N.E. Railway propose reconstruction of railway station, at £300,000.

Droitwich.—Norbury House Hotel, Ltd., Priory-st., proposing swimming bath, lounge, remedial gymnasia and treatment baths. Stanley Hall and Easton & Robertson, architects, FF.R.I.B.A., 34, Bedford-sq., London, W.C.1.

Dunmow.—Subject to approval of M.H., R.D.C. to erect further houses at Thaxted (20), Felsted (16), Hatfield Heath (12), Stebbing (8), Broxted (8), Barnston (4 bungalows), and Aythorpe Roding (2).

Durham.—Special Areas Commissioner promised increased grant of 75 per cent. towards City Council's Stone Bridge sewerage works. W. J. Greene, City E.

Enfield.—Council approved provision of 4 additional slipper-baths at swimming pool, at £175.—Whitbread & Co., Ltd., to erect hotel at junction of Lincoln-st. and arterial road.

Essex.—C.C. recommend:—£125 for fencing land adjoining site of South-East Essex Technical College, Walthamstow; enlargement of King Edward VI School, Chelmsford, at £26,426; enlargement of Grammar School, Earls Colne, at £6,850; purchase of land adjoining West Mersea Council School and

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* **See also List of Contracts open.**

. **In these lists every care is taken to ensure that information given is accurate and up to date, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced.**

fencing site at £752; enlargement and adaptation of junior school, Maldon, at £8,726; fencing intermediate school, Braintree, £180; staff room at St. Osyth-rd. Council School, Clacton, at £490; reconstruction of Witham railway bridge, £3,072; reconstruction of Pitsea underline bridge, No. 96, at £23,160; strengthening hairpin bridge, No. 138, Purfleet By-pass-Tilbury Station-rd., at £4,500; combined treatment centre at Vange at £2,853; conversion of receiving ward block at Chelmsford Institution into hospital annexe at £945. Tenders to be invited: additional room, nurses' home, Braintree Institution, at £250; piggeries at Braintree Institution, at £217; purchase of 6 and 7, King Edward-av., Chelmsford, for extensions to County Hall if required at £1,800; purchase of lands at Cole Green, Belchamp St. Pauls, Great Horkesley, Halstead, Holland-on-Sea, Foxearth, Ridgewell, Thaxted, Laindon High-rd., New-av. estate, Laindon, Mill-rd., Stock, adjoining Court House, Thorpe, Rainham, and High-st., Ongar, for police housing accommodation; and two convalescent villas at Brentwood mental hospital at £16,700.

Flintshire.—E.C. propose central and senior schools in Mostyn, Caergwrle, St. Asaph and Hanmer. R. G. Whitley, L.R.I.B.A., County Architect, Mold.

Gloucester.—T.C. approved:—Offices and factory, Bristol-rd., C. Stephens; additions to factory, Birchmore-rd., Appleby & Sons, Ltd.

Great Yarmouth.—Governors approved extension of grammar school, at £10,600.

Guildford.—E.C. to erect two additional classrooms at Westborough school, Southway-av.—Additional classroom to be erected at Central school, Harvey-rd.

Harrogate.—T.C. considering alternative schemes for improving Royal Baths, one being for reconstruction at £30,000, the other for alterations and additions at £100,00.—Tetley & Sons, Ltd., The Brewery, Leeds, to carry out reconstruction of "Exchange Hotel." Tenders being invited. Plans by Kitson, Parish, Ledgard & Pyman, architects, Vicar-ln., Leeds.

Houghton-le-Spring.—R.D.C. proposes shelter near East Rainton Council school.

Hull.—Corporation approved establishment of mental defective colony, Winstead-in-Holderness, at £49,000.

Hyde.—T.C. propose infants' school and playground at Flowery Field.

Irlam.—U.D.C. propose 20 cottages and 8 bungalows. Surveyor, H. Nourse, F.R.I.B.A.

Kettering.—U.D.C. approved plans for factory, Trafalgar-st., for Aquascutum, Ltd. R. J. Williams & Partners, architects, Market-pl.

Kirkby-in-Ashfield. — Notts E.C. propose to acquire land Sutton-ln. for school for mentally defective boys, at £2,680.

Kiveton Park.—Miners' Welfare Central Fund Committee propose pithead baths at Waleswood Collieries near Sheffield. Plans by architect, J. H. Forshaw, A.R.I.B.A., Mine Section, Romney House, Marsham-st., London, S.W.1.

Leeds.—Armstrong, Midgley & Co. seeking sanction to erect new hotel at junction of Roundhay-rd. and Harehills-ln.—Trustees of the British Legion Club, Middleton, to build new club premises acquired from Corporation. Tenders to be invited. Plans by J. Brodie, architect, Pudsey, nr. Leeds.

Leyton.—The architect, in consultation with the Borough Electrical Engineer, recommends improvement of the electric lighting installations in schools as follows:—Goodall-rd., £600; Mayville-rd., £350; Newport-rd., £800; Knotts Green Special, £100; Capworth-st., £350; Ruckholt Central, £250; Cann Hall-rd., £350; Sybourn-st., £300; Norlington-rd., £350; Trumpington-rd., £250; Davies-ln., £400; Canterbury-rd. J.M. and I., £200; and Church-rd. J.G. and I., £200.

Liverpool.—Plans passed by Corporation:—Extension to works, Brompton-rd., W. F. Horsburgh, for Automatic Electric Co., Ltd.; 4 houses, Eaton-rd., 14 houses, Agincourt-rd., and 5 houses, Valescourt-rd., R. G. Tyrer, for Scarrett Bros.; showroom and addition, 5, Shaw-st., Kenmure Kinna, for Pearson's, Ltd.; 20 tenements, Horatio-st., and 24 tenements, Lawrence-st., 10 houses, Rose-st., and 20 flats, New-rd. off Rose-st., the Corporation; alteration, 40-44, Mason-st., Adams Bros. (Liverpool), Ltd., for P. M. Willey & Sons, Ltd.; new synagogue (amended plans), Greenbank-dr., A. E. Shennan for Building Committee, Greenbank-dr. Synagogue; 8 shops and workrooms, Hockenhall-alley and Cheapside, Ley Colbeck & Partners, for Amalgamated Properties, Ltd.

Macclesfield.—T.C. propose development of land at Moss-ln. for additional 183 houses. Plans prepared by E. Hamson, B.S.

Manchester.—Board of Management of the Christie Hospital and Holt Radium Institute, Wilmslow-rd., Withington, propose additional buildings for deep therapy departments, at £30,000. Architects, Harry S. Fairhurst & Son, F. & A.R.I.B.A., 55, Brown-st. Quantities being commenced.—Watch Committee approved plans for fire station at Wythenshawe. G. Noel Hill, F.R.I.B.A., City Architect.—Fred Riley, L.R.I.B.A., chartered architect, 4, Cannon-st., prepared plans of extensions to "Linwood" Hotel, Linwood-st., Hulme, for Joshua Tetley & Son, Ltd., brewers, Hunslet-rd., Leeds. Tenders now being invited.

Mansfield. — Museums Committee to prepare scheme for museum, for T.C.—B.S. is to prepare plans for 66 houses, Ravensdale, Reindeer and Racecourse estates.—3½ acres of land to be acquired on Chesterfield-rd. for housing site.—B.S. prepared layout of Berry Hill estate, with provision of shopping centre.—Fire Brigade Committee to prepare scheme for fire station and firemen's houses, for T.C.

Meriden.—R.D.C. approved plans for assembly hall, James-st., Arley, Salvation Army Authorities; reconstruction of Crook Hotel, Coventry-rd., Bickenhill, Showells Brewery Co., Ltd.; works, Coventry-rd., Allesley, Rugby Autocar Co., Ltd.; layout of 34 houses off Station-rd., Marston Green, F. Kirton.

Methley Bridge.—West Riding C.C. propose reconstruction and widening of bridge, at £85,000.

Morecambe. — Members of Heysham Golf Club proposing club-house, at £5,000. Plans by C. B. Pearson & Son, F. & A.R.I.B.A., architects, 18, Dalton-sq., Lancaster. Contracts not let.—T.C. propose fire station.—Lancashire C.C. propose widening Poulton Bridge. P. Schofield, C.S.—Directors of Central Pier to erect new ballroom to replace one burnt down, and also concert hall to seat 1,000.

Near Leeds.—The second scheme for the Alwoodley Park Estate, nr. Leeds, about 4½ miles from central Leeds, has been planned by J. B. Clay, A.I.A.A., of Leeds. The project is for a further 62 houses on one portion of the site and 7 on a second.

Newcastle (Staffs).—Ind Coope & Co., Ltd., brewers, Station-st., Burton, propose hotel corner of Talke-rd. and Dimsdale-parade.—S. A. Wilmot, architect, Bournville Estate Office, to prepare plans for public conveniences in Stafford-st. Cost £1,500.

Newcastle-under-Lyme. — Staffordshire C.C. propose hospital on site of Public Assistance Institution. County Architect, E. L. Murray, F.R.I.B.A., Stafford.

Newcastle-on-Tyne.—Contracts still to be placed for showrooms and offices in Shields-rd., for G. Wilkes & Sons. Architect, J. N. Fatkin, 17, Biggmarket.

Newton-le-Willows.—A. & B. Motors, Mill-ln., prepared own plans for showrooms and storage accommodation, Mill-ln. Contracts not let.

Preston.—M.H. approved loan of £27,539 for sewerage and sewage disposal works.

Retford.—Notts E.C. propose assembly hall at King Edward VI Grammar School at £7,550. County Architect, L. Maggs, F.R.I.B.A., Nottingham.

Salford.—T.C. recommend proposal to borrow £3,555 to cover the cost of purchase of site and premises of Salford Girls' Institute and adaptation and furnishing of premises for use as junior instruction centre for boys.

Tunbridge Wells.—T.C. approved:—Morris Securities, Ltd., block of 15 shops, offices and dwellings, Grosvenor-rd.

Urmston.—A. Locke, Ltd., builders, Hartford estate, Davyhulme, prepared own plans for 43 houses, Hartford estate.

Wallasey.—M.H. approved use of site for nurses' home, for Victorial Hospital.

FIRES.

Sheffield.—Damage, estimated at £35,000, occurred at Theatre Royal.

Wrecclesham. — Damage estimated at £20,000 caused by fire at premises of Messrs. E. D. Abbott, Ltd., coachbuilders and motor engineers.

MOISTURE IN TIMBER IN NEW BUILDINGS

The Forest Products Research Laboratory of the Department of Scientific and Industrial Research have carried out experiments to ascertain, in terms of the moisture in the wood, the conditions in buildings that have dried out and thus reached a steady state, and also to determine the rate of drying of new buildings and the behaviour of timber in them. The results are given in Forest Products Research Records, No. 5, which has just been published by H.M. Stationery Office, price 6d.

Timber specimens were exposed and observed in the following fairly recently completed buildings: Thames House, Millbank; a City bank building; Broadcasting House; and the Princes Risborough post office.

Tests were also carried out in the following buildings during and after erection: St. Mary's Hospital, Paddington; the Royal Masonic Hospital, Ravenscourt Park; a house at Princes Risborough; and an extension to the Laboratory.

From the conclusions reached in the Report it would seem sufficient for buildings to be dried by temporary heating or other measures until the moisture content of wood samples placed in them is not much greater than 12 per cent. Timber should then be installed after being seasoned to this value or a little below it. Subsequent attempts to "dry" the structure should be modified to the maintenance of only such heating as is required for comfort. "By these means," the Report states, "the woodwork in the building would be safe from undue shrinkage, and although the maturing process in general would perhaps be slower, it is to be expected that general benefit would result.

"The 'baking' of a building in the early days of occupation is strongly to be deprecated, for apart from the unnecessary expense it entails, even the most carefully seasoned and fitted joinery work is bound to shrink and possibly to distort, an occurrence which is often the cause of dispute between contractor and owner."

The period taken for a new building to "dry" is dependent on a number of factors. It would seem that the third and fourth floors of St. Mary's Hospital dried in six months, the first floor in three months, and the Royal Masonic Hospital in five months. The house at Princes Risborough dried in four months, but owing to the intermittent nature of the heating applied during this time, weather conditions had a considerable influence.

NEW PUBLIC WORKS.

GREAT BRITAIN.—Among the contracts advertised by local authorities in this issue as being open are the following:—Northampton.—School of Art; Biggleswade.—10 houses; Heston and Isleworth.—Sub-stations; Birmingham.—Building work; Cheltenham.—Alterations and school; West Ham.—Sub-station; St. Albans.—Alterations and additions; Portsmouth.—School; Watford.—120 houses; Coventry.—Alterations and additions; Bexhill.—29 houses; Warwick.—Library; Chelmsford.—Offices; Bexley.—Library; and Luton.—School.

HARROGATE.—Plans for the reconstruction of the Royal Baths and for the erection of possibly two additional buildings in the grounds are to be submitted to Harrogate Town Council shortly. According to one report, two schemes will be submitted—one estimated to cost about £30,000 and the other in excess of £100,000.

LEEDS.—Two important central improvements in Leeds are likely to be started in the near future, states the *Yorkshire Post*. One is the adoption of a scheme for levelling Victoria-square in front of the Town Hall, and the other is the extension of The Headrow for another half-mile along Westgate.

SOUTHEND-ON-SEA. — Southend-on-Sea Borough Council has decided to spend £304,000 on improvements and extensions to the municipal hospital.

PRICES CURRENT OF MATERIALS*

Owing to the exceptional circumstances which prevail at the present time prices of materials should be confirmed by inquiry.

BRICKS, &c.

Per 1,000 Alongside in River Thames up to Mortlake.

	£ s. d.
Best Stocks	4 2 0
Second Hand Stocks	3 10 0

Per 1,000. Delivered at London Goods Stations.

	£ s. d.		£ s. d.
"Phorpres"	*2 8 3	Flettons, B'll'n'se..	3 6 3
Flettons at King's Cross	*2 8 3	Best blue Pressed Staffs....	8 5 0
Do., grooved for Plaster	*2 10 3	Do. Bullnose	8 15 0
		Blue Wire Cuts	7 0 0
White Midhurst Facing Bricks (delivered London site)	5 0 0		
"Phorpres" Whites (King's Cross)	*2 11 3		
"Phorpres" Rustic Facings (King's Cross)	*2 6 3		

Best Stourbridge Fire Brick:—

2½ in.	7 15 0	3 in.	8 15 0

*Delivered to site in W.C. district, 6s. extra per 1,000.

GLAZED BRICKS—

Best White		Db'le Str'tch'rs	29 10 0
Ivory and Salt Glazed		D'ble Headers	26 10 0
Stretcher	21 0 0	One side and two Ends	30 10 0
Headers	20 10 0	Two sides and one End	31 10 0
Quoins, Bullnose and 4½in. Flats	27 10 0	Splays and Squints	28 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

PARTITION SLABS.

Delivered London Area.

CLINKER CONCRETE.

2" per yd. sup	1 6	3" per yd. sup.	2 0
2½ " "	1 8	4" "	2 4

CRANHAM TERRA COTTA.

2" per yd. sup.	3 0	3" per yd. sup.	3 8
2½ " "	3 6	4" "	4 7

HEMPSTEAD—KEYED TWO SIDES.

12" x 9" x 2"	2 6	12" x 9" x 3"	3 0
12" x 9" x 2½"	2 9	12" x 9" x 4"	3 9

Per yard super d/d. Free on site, London.

	s. d.	
Thames Ballast	7 3 per yd.	delivered 2 miles radius Paddington.
Pit Ballast	6 3 " "	
Pit Sand	7 9 " "	
Washed Sand	8 3 " "	
¾ in. Shingle	7 3 " "	
¾ in. Broken Brick	11 3 " "	
Tan Breeze	8 3 " "	

CEMENT.

Best British Portland Cement, Standard Specification, delivered London Area in jute sacks (11 to ton), or paper bags (20 to ton) free (non-returnable):—

	£ s. d.
4 ton loads and upwards site.....Per ton	1 19 0
1 ton to 4 tons site	2 1 0
Alongside Vauxhall in 80-ton lots	1 15 0
"Ferrocrete" Rapid Hardening Cement:—	
4 ton loads and upwards site	2 5 0
1 ton to 4 tons site	2 7 0
Alongside Vauxhall in 80-ton lots	2 1 0

NOTE.—Jute sacks are charged 1s. 6d. each and credited 1s. 6d. nett, if returned in good condition withiu three months, carriage paid.

"Colorcrete" Nos. 1 and 2 Coloured Rapid Hardening Portland Cement in 1-cwt. paper bags free (non-returnable) in 1-ton lots and upwards site	3 6 0
"Snowcrete" White Portland Cement in 1-cwt. paper bags free (non-returnable) 1 ton and upwards site	8 15 0
Super Cement (Waterproof) paper bags free	3 9 0
Roman Cement	6 15 0
Parian Cement	5 15 0
Keene's Cement, White	5 15 0
" " Pink	5 10 0

PLASTER.

	£ s. d.		£ s. d.
Coarse, Pink ..	2 17 0	Sirapite, Coarse	3 5 0
" White ..	3 2 6	" Finish	3 13 0
Super Carbo ..	2 7 6	4-tonloads&over London Area, paper bags free.	
Carbo Setting ..	2 12 6		
Best Ground Blue Lias Lime ..	1 17 6	Grey Stone Lime	2 2 0
		Chalk Lime ..	2 2 0
GraniteChippings	1 12 0	Hair per cwt.	2 2 6

NOTE.—Sacks are charged 1s. 9d. each, and credited 1s. 6d., if returned in good condition within three months carr. pd.

Stourbridge Fireclay in sacks 37s. 0d. per ton at riy. dep.

STONE.

	s. d.
BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	2 10
DEER STONE—RANDOM BLOCK— Free on rail at Seaton Station, per ft. cube	2 3
Delivered free on rail Nine Elms, S.R. per ft. cube	3 1½
Selected approximate size one way, 1d. per cubic foot extra; selected approximately three sizes or for special work, 3d. per cubic foot extra.	
PORTLAND STONE— Brown Whitbed, in random blocks of 20ft. average, delivered in railway trucks at Nine Elms, S. Ely., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 4½
Do. do. delivered on road waggons at above stations, per ft. cube	4 5½
White basebed, 3d. per ft. cube extra.	
NOTE.—1d. per ft. cube extra for every foot over 20 ft. average, and ½d. beyond 30ft.	
HOPTON-WOOD STONE— F.O.R. Quarries, Wirksworth Derbyshire, Random blocks from 10ft. and over F.ft.cb	14 0
Sawn two sides	22 6
HOPTON WOOD STONE— Sawn three or four sides	27 9
CHILMARK—RANDOM BLOCK— At Nine Elms, per ft. cube	3 11
YORK STONE, BLUE—*Robin Hood Quality.* Delivered at any Goods Station London. 6in. sawn two sides landings to sizes (under 30 ft. super) Per ft. super	5 6
6in. rubbed two sides, ditto "	6 0
3in. sawn two sides slabs (random sizes),	2 3½
2in. to 2½in. sawn one side slabs (random sizes) "	1 6½
1½in. to 2in., ditto "	1 3½
HARD YORK— Delivered at any Goods Station, London. Scappled random blocks ....Per ft. cube	6 1
6-in. sawn two sides landing to sizes (under 40 ft. super) Per ft. super	5 1½
6in. rubbed two sides, ditto "	6 1½
4in. sawn two sides slabs (random sizes) "	3 1½
3in. ditto ditto "	2 8
2in. self-faced random flags..Per yd. super	7 6

CAST STONE.

Delivered in London area in full van loads, per ft. cube: Plain, 8s. 6d.; Moulded, 9s. 6d. Sills, 10s. 0d.

SOFT WOOD.

GOOD BUILDING DEAL.

Inches.	Per stan.	Inches.	Per stan.
4 × 11	£23 10	3 × 6	£18 10
4 × 9	22 10	3 × 11	19 10
4 × 8	21 0	2 × 11	19 10
4 × 7	19 0	3 × 9	19 10
3 × 8	17 10	2½ × 9	19 10
3 × 7	16 0	3 × 4½	17 10
2½ × 7	18 0	3 × 4	17 10

PLANED BOARDS.

1 × 11	£22 10	1 × 9	£21 0

PLAIN EDGE FLOORING.

Inches	per sq.	Inches.	per sq.
⅞	16/-	1¼	25/-
1	17/-	1½	31/6
1	19/-		

TONGUED AND GROOVED FLOORING

Inches.	per sq.	Inches.	per sq.
1	21/-	⅞	16/-
1¼	26/-	¾	18/6
1½	32/6	1	22/6

MATCHING (BEST)

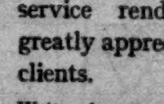
ins. BATTENS	s. d.	SAWN LATHS.	s. d.
¾ × 2..per 100ft.	2 6	Per bundle	2 3

HARD WOOD.

1 INCH AND UP THICK.

	£ s. d.
Average price for prime quality.	
Dry Austrian Wainscot, per ft. cube	0 15 0
Dry American and/or Japanese Figured Oak, per ft. cube	0 12 0
Dry American and/or Japanese plain Oak, per ft. cube	0 10 0
Dry sq. edged Honduras Mahogany, per ft. cube	0 14 0
Dry log-cut Honduras Mahogany, per ft. cube	0 16 0
Dry Cuba Mahogany, per ft. cube	1 1 0
Dry Teak, per ft. cube	0 14 0
Dry American Whitewood, per ft. cube	0 10 0
Best Scotch Glue, per cwt.	3 0 0
Liquid Glue, per cwt.	4 7 0 to 5 10 0

HUDDERSFIELD Building Society



Experience has shown that the arrangements made by the Huddersfield to assist occupier borrowers have given the utmost satisfaction, and the service rendered has been greatly appreciated by builders' clients.

Write for the Folder "Mortgage Facilities" to The Huddersfield Building Society, Britannia House, 203, Strand, London, W.C.2., or to the Head Office, Britannia Buildings, Huddersfield. Andrew Stewart, C.A., Managing Director.

WHEN YOU INVEST—A HOUSE IS BEST!

SLATES.

First quality slates from Bangor or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual.

	£ s. d.		£ s. d.
24 by 12	29 15 0	18 by 10	15 12 6
22 by 12	25 0 0	18 by 9	13 15 0
22 by 11	22 10 0	16 by 10	13 10 0
20 by 12	22 0 0	16 by 8	10 7 6
20 by 10	19 7 6		

TILES.

Delivered at London rate stations in full truck loads of not less than 6 tons. Per 1,000 f.o.r. London.

	£ s. d.
Best machine-made tiles from Broseley or Staffordshire district	£4 2 6
ditto hand-made ditto	4 10 0
Ornamental ditto	4 15 0
Hip and valley tiles (per dozen) Hand-made	0 8 6
Hip and valley tiles (per dozen) Machine-made	0 8 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION, PER TON—

	£ s. d.
R.S. Joists, cut and fitted	£11 10 0
Plain Compound Girders	13 10 0
" Stanchions	16 0 0
In Roof Work	18 10 0

MILD STEEL ROUNDS.—To London Station, per ton.

Diameter	£ s. d.	Diameter	£ s. d.
¼ in.	12 0 0	⅝ in. to ½ in.	10 15 0
⅜ in.	11 0 0	⅝ in. to 2½ in.	10 10 0

WROUGHT-IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £7 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward, if sent from London Stocks)

	Standard Wrot. Mild Steel Tubes and Tubulars Sizes ⅛in. to 6in. %	Genuine Wrot. (Puddled) Iron Tubes and Tubulars Sizes ⅛in. to 6in. %	Standard Fittings Sizes ⅛in. to 6in. %	Standard Flanges Sizes ⅛in. to 6in. %
Gas	65	52½	57½	70
Water	61½	48½	52½	65
Steam	57½	45	47½	60
Galv. gas	52½	40	47½	60
Galv. water	47½	35	42½	55
Galv. steam	42½	30	37½	50

C.I. HALF-ROUND GUTTERS—London Price ex Works.

Per yd. in 6ft. lengths.	Gutters.	Angles and Nozzles.	Stop Ends.
3 in.	1/5½	1/1½	4½d.
3½ in.	1/6½	1/3	5½d.
4 in.	1/6½	1/4½	6½d.
4½ in.	1/8	1/6½	9½d.
5 in.	1/10½	1/8½	10d.

O.G. GUTTERS.

3 in.	1/7½	1/5½	7d.
3½ in.	1/9½	1/5½	7½d.
4 in.	1/11	1/6½	8½d.
4½ in.	2/0	1/9½	9½d.
5 in.	2/4½	2/0½	11½d.

RAIN WATER PIPES, &c.

Per yd. in 6 fts.	Pipe.	Bends, stock angles.	Branches, stock angles.
2 in.	2/2½	1/4½	2/0
2½ in.	2/3½	1/6½	2/4½
3 in.	2/9½	1/11	2/10½
3½ in.	3/3½	2/3½	3/3½
4 in.	3/9	2/9	4/0½

Less 20 per cent. trade discount.

Tonnage allowance—4-ton lots, 5 per cent. 2-ton lots, 2½ per cent.

L.C.C. COATED SOIL PIPES—London Prices ex Stock.

	Pipe.	Bends, stock angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
2in. per yd. in 6 fts.	2 9½	2 0	2 5½
2½in. " ..	3 2	2 2½	3 0½
3 in. " ..	3 6	2 5½	3 7½
3½ in. " ..	3 9½	3 0½	4 2½
4 in. " ..	4 2½	3 4½	4 10½

L.C.C. COATED DRAIN PIPES—London Prices ex Stock.

	Pipe.	Bends, stock angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
3in. per yd. in 9ft. lengths	3 4½	4 3	7 3
cwt. qr. lbs.			
4in. " 1 1 20..	5 1	5 3	8 3
5in. " 1 2 22..	6 6	8 9	13 6
6in. " 2 0 6..	7 6	10 3	18 3

Gaskin for jointing 41/- per cwt.

IRON—	Per ton in London. £ s. d.		£ s. d.
Common bars	10 0 0	to	10 10 0
Staffordshire Crown Bars— Good merchant quality	10 10 0	to	11 0 0
Staffordshire Marked Bars	14 0 0	..	15 0 0
Mild Steel Bars	9 0 0	..	10 0 0
Steel Bars, Ferro-Concrete quality, basis price	8 10 0	..	9 0 0
Hoop iron, basis price	11 0 0	..	12 0 0
" Galvanised	27 10 0	..	28 10 0

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

PRICES CURRENT OF MATERIALS—(*contd.*).

IRON—	Per ton in London. £ s. d.		£ s. d.
Soft Steel Sheets, Black—			
Ordinary sizes, to 20 g.	11 0 0 ..		11 10 0
,, ,, 24 g.	12 0 0 ..		13 0 0
,, ,, 26 g.	14 0 0 ..		15 0 0
Sheets Flat Best Soft Steel, C.R. and C.A. quality—			
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	15 0 0 ..		16 0 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g.....	17 10 0 ..		18 10 0
No. 1 quality £4 per ton extra.			
Flat and Galvanised Corrugated Sheets—			
Ordinary sizes, 6 ft. to 9 ft. to 20 g.	13 10 0 ..		15 0 0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g...	15 10 0 ..		16 10 0
Ordinary sizes, 6 ft. to 9 ft. to 26 g.	16 10 0 ..		18 0 0
Sheets, Galvanised, Flat, Best quality—			
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	14 10 0 ..		16 10 0
Best Soft Steel Sheets, 22 g. and 24 g.	15 0 0 ..		17 0 0
Best Soft Steel Sheets, 26 g.	16 10 0 ..		18 0 0
Cut Nails, 3 in. to 6 in.....	15 10 0 ..		17 0 0
(Under 3 in. usual trade extras.)			

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

COPPER.

		s. d.
Seamless Copper tubes (basis)	per lb.	0 9
Strong sheet	,,	0 10
Thin	,,	0 11
Copper nails	,,	1 0
Copper wire	,,	0 11

PLUMBERS' BRASS WORK.

Delivered in London.

NEW RIVER PATTERN SCREW DOWN BIB COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
29/-	45/-	76/-	153/-	246/-	510/- per doz.

NEW RIVER PATTERN SCREW DOWN STOP COCKS AND UNIONS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
41/6	62/-	92/-	174/-	200/-	588/- per doz.

RIVER PATTERN SCREW DOWN MAIN FERRULES.

½ in.	¾ in.	1 in.
39/-	60/-	116/6 per doz.

CAPS AND SCREWS.

1½ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
7/6	10/-	14/-	23/-	30/-	42/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
7/6	11/-	17/-	29/-	36/-	63/- per doz.

BRASS SLEEVES.

1½ in.	2 in.	3 in.	3½ in.	4 in.
10/-	12/-	20/-	24/-	31/- per doz.

NEW RIVER PATTERN CROYDON BALL VALVES S.F.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.
35/-	56/-	98/-	162/-	228/- per doz.

DRAWN LEAD P. & S, TRAPS WITH GLASS CLEANING SCREW.

	1¼ in.	1½ in.	2 in.	3 in.
3 lbs. P. traps	33/-	41/-	56/-	101/- per doz.
3 lbs. S. traps	35/-	45/-	66/-	126/- per doz.

TIN.—English Ingots, 2/6 per lb. SOLDER.—Plumbers 1/1, Tinmen's 1/3, Blowpipe 1/4 per lb.

LEAD, &c.

(Delivered in London.)	£ s. d.
LEAD.—Sheet, English, 4 lb. and up.....	24 10 0
Pipe in coils	24 10 0
Soil pipe	30 0 0
Compo pipe	31 0 0

NOTE.—Country delivery, 20/- per ton extra, lots under 3 cwt. 4/- per cwt. extra, and over 3 cwt. and under 5 cwt., 2/6 per cwt. extra. Cut to sizes, 4/- per cwt. extra.

Old lead, ex London area, at Mills ..... per ton } £15 10 0

PAINTS, &c.

		£ s. d.
Raw Linseed Oil, in pipes.....per gallon		0 3 0
,, ,, ,, in barrels	,,	0 3 2
,, ,, ,, in drums	,,	0 3 4
Boiled ,, ,, in barrels	,,	0 3 5
,, ,, ,, in drums	,,	0 3 7
Turpentine, in barrels	,,	0 4 2
,, in drums (10 galls.).....	,,	0 4 4
Genuine Ground English White Lead, per ton (In not less than 5-cwt. casks.)		51 0 0

Extra for 1-cwt. kegs over 5-cwt. casks is 5/9 cwt.

GENUINE WHITE LEAD PAINT.

"Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganawyte," "Polacco," "J" Brand, and other best brands (in 14-lb. tins) not less than 5-cwt. lots per ton delivered 70 0 0

Red Lead, Dry (packages extra) ..	per ton	37 0 0
Best Linseed Oil Putty	per cwt.	0 13 0
Size. XD quality	fkn.	0 3 6

VARNISHES, &c.

		Per gallon
Oak Varnish .....Outside		0 14 0
Fine Do.	Do.	0 16 0
Fine Copal.....	Do.	0 18 0
Pale Copal.....	Do.	1 0 0
Pale Opal Carriage	Do.	1 4 0
Best Do.	Do.	1 12 0
Floor Varnish .....Inside		0 18 0
Fine Pale Paper	Do.	0 18 0
Fine Copal Cabinet	Do.	1 2 0
Fine Copal Flatting.....	Do.	1 0 0
Hard Drying Oak	Do.	0 18 0
Fine Hard Drying Oak	Do.	0 19 6
Fine Copal Varnish	Do.	1 0 6
Pale Do.	Do.	1 12 0
Best Do.	Do.	1 2 6
Best Japan Gold Size.....		0 12 6
Best Black Japan		0 10 0
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black		0 7 6
Berlin Black		0 14 0
Knotting (patent)		0 15 0
French and Brush Polish		0 12 0
Liquid Dryers in Terebene		0 9 0
Cuirass Black Enamel.....		0 7 0

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

ORDINARY GLAZING QUALITY & SELECTED GLAZING QUALITY.

per ft. super		per ft. super
15 oz. O.G.Q. .. 2½d.	32 oz. O.G.Q.	6½d.
15 ,, S.G.Q. .. 2½d.	32 ,, S.G.Q.	7½d.
21 ,, O.G.Q. .. 3½d.	Obscured Sheet, 15 oz.	3½d.
21 ,, S.G.Q. .. 3½d.	,, ,, 21 ,,	4½d.
26 ,, O.G.Q. .. 4½d.	Fluted, 15 oz. 6½d., 21 oz.	9d.
26 ,, S.G.Q. .. 5d.	Em'lld 15 oz. 4½d., 21 oz.	5½d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED plate in CRATES OF STOCK SIZES.

	Per ft.
Rolled plate ¼ in.....	4½d.
Rough rolled ⅜ in.	5½d.
Rough rolled, ½ in.	5½d.
Figured, Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish White....	5½d.
Do. tinted	8d.
Rolled Sheet	5d.
White Rolled Cathedral	8d
Tinted Do.	7½d.

Cast plate is same price as rough rolled.

"VITA" GLASS.

	per ft. s. d.
Clearsheet—not exceeding 1 foot	1 0
Do. do. 2 feet	1 3
Do. over 2 feet	1 9
Polished plate—not exceeding 1 foot	1 6
Do. do. 2 feet.....	3 0
Cathedral—not exceeding 1 foot	1 0
Do. larger sizes	1 6
Horticultural Sheet and Cathedral "Vita" Glass. Sizes up to 24 inches by 18 inches or not exceeding 3 feet	1 0
3/16 in. Wired Georgian Design. Sizes up to 96 inches long by up to 24 inches wide.....	2 9

BUILDING TRADE WAGES IN SCOTLAND

Following are grade rates authorised by the Scottish N.J.C. for the Building Industry from January 1. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

Grade Classification	A	A¹	A²	A³	B	B¹	B²	B³
Craftsmen	1/6½	1/5½	1/5	1/4½	1/4	1/3½	1/3	1/2½
Labourers	1/2	1/1½	1/0½	1/0½	1/0	-/11¾	-/11½	-/11

Aberdeen .....A	Dundee .....A	Hawick .....A³	Perth .....A
Airdrie .....A	Dunfermline ....A	Helensburgh ....A	Perthshire .....A³
Alexandria .....A	Dunoon .....A	Inverness .....B	Peterhead .....A³
Arbroath .....A	East Lothian ..A	Kilmarnock ....A	Renfrewshire ..A
Ayrshire .....A	Edinburgh .....A	Kincardineshire A	Rothesay .....A
Bathgate .....A	Falkirk .....A	Kinross-shire ....A	Roxburghshire ..A³
Bo'ness .....A	Forfarshire ....A³	Kirkcaldy .....A	St. Andrews ....A
Broughty Ferry ..A	Fort William ....B	Lanarkshire ....A	Selkirkshire .... A
Clackmannanshire A	Galashiels .....A³	Leith .....A	Stirling .....A
Coatbridge .....A	Glasgow .....A	Midlothian .....A	Stirlingshire, West A
Dumbartonshire ..A	Greenock .....A	Motherwell ....A	West Lothian....A
Dumfries .....A³	Hamilton .....A	Peeblesshire ....A³	Wishaw .....A
Dumfriesshire.....A			

NOTE.—Painters, Grade A, receive 1/7 per hour (except Aberdeen—1/6½). Painters, Grade B, receive 1/6 (except Aberdeen—1/5½). Bricklayers in Glasgow and District, Dumbartonshire, Renfrewshire and Lanarkshire receive 1/7 per hour.

The information given in this table is copyright. The rates of wages in various towns in England and Wales are given on page 119.

THE SCOTTISH BUILDER

NEW BUILDINGS

The Editor would be glad to receive information for publication under this heading from architects, builders, or other persons concerned. Items should be received at THE BUILDER *Office not later than Wednesday morning.*

CLACKMANNANSHIRE. — HOUSES.—The C.C. has decided to proceed immediately with the building of 96 houses at Sauchie, 52 at Clackmannan, 32 at Coalsnaughton, and 12 at Tullibody.

COATBRIDGE.—FIRE STATION.—The T.C. have instructed a committee to negotiate for a site for a new fire station.

DUNDEE.—BUILDINGS.—Plans and sections of the following proposed new buildings, etc., have been lodged at the office of the City Engineer: Clarence-road—bungalow for W. Black (architect, W. M. Patrick, 26, Yeaman-shore); Dalgleish-road—bungalow for C. R. W. Gray (architects, Thoms & Wilkie, 21, South Tay-street); Frederick-street—bungalow for J. K. Anderson & Co. (architect, J. Clunie, 5, Kirkton-road); King-street—houses and shops for Albert Thain; Kingsway—bungalows for W. Black (architect, W. M. Patrick); Mains-road—shop for the Dundee Pasteurised Milk Co., Ltd. (architect, R. Gibson, 2, India Buildings); Monifieth-road—bungalow for the Hillside Property Investment Co., Ltd. (architect, W. M. Wilson, 61, Meadowside); Murraygate—alterations for Smith Brothers (architects, Maclaren, Soutar & Salmond, 15, South Tay-street); School-road—bungalows for the Rockwell Building Co., Ltd.; Strips of Craigie-road—bungalow for R. Samson (architect, T. L. Gray, 2, India Buildings); and Murraygate—additions for Smith Bros. (architects, Maclaren, Soutar & Salmond).

DUNDEE.—HOUSING.—The Housing Committee of the Corporation has decided that the Director of Housing should present plans to the committee for the lay-out of houses to be erected at Magdalen's Kirkton estate.

GLASGOW.—EXTENSION.—Messrs. James Templeton and Co., Ltd., Bridgeton, are preparing plans for a new extension to their factory.

GLASGOW.—FACTORY.—Plans are in hand for a new bakery factory for Messrs. Bilsland, Ltd. The architect is Mr. George Boswell, 256, West George-street, Glasgow.

GLASGOW.—WIDENING.—The widening of the aqueduct carrying the Forth and Clyde Canal over Maryhill-road, at a cost of £100,000, is proposed by the Streets, Sewers and Building Committee of Glasgow Corporation.

KIRKCALDY.—FIRE STATION.—The T.C. have decided to erect a new fire station at £12,000.

MUSSELBURGH.—WASHHOUSE.—The T.C. have decided to erect a new washhouse in South-street.

PERTH.—SCHOOL.—Plans were passed at the Dean of Guild Court for alterations and addition to the buildings at 46-52, North Methven-street, Perth, the property of St. Ninian's Cathedral. It is proposed to take down the existing school and outbuildings, and to erect on the site a hall, school, and a porch and close, between the Chapter House and the new school.

PRESTONPANS.—HOUSES.—The T.C. have decided to erect four blocks of houses (14 houses in all) at Redburn-road; two blocks of houses (12 houses in all) at North Barrows; and six blocks of houses (20 houses in all) at Pyper's-wynd.

STRANRAER.—EXTENSIONS.—The Dean of Guild Court has passed plans for an extension and alterations to Mr. James McHarrie's motor-car premises in Charlotte-street.

TRANENT.—HOUSING.—The T.C. has provisionally agreed to a proposal to erect a first instalment of 100 new houses to relieve overcrowding.

CURRENT PRICES FOR BUILDING WORK IN LONDON*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	8	0
Add if in clay	„ „	1	0
Add for every additional depth of 6 ft.	„ „	0	6
Planking and strutting to trenches	per foot super	0	3
Do. to sides of excavation, including shoring	„ „	1	0

CONCRETOR.

Portland cement concrete in foundations 1 to 6	per yard cube	24	0
Add if in underpinning in short lengths	„ „	5	0
Add if in floors 6 in. thick	„ „	2	0
Add if in beams	„ „	2	6
Add if aggregate 1 : 2 : 4	„ „	8	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	„	1	6

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Flettton bricks	per rod	26	0	0
Add if in stocks	„	6	0	0
Add if in Staffordshire blues	„	22	0	0
Add if in Portland cement and sand	„	1	5	0

FACINGS.

Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1½

POINTING.

Neat flat struck or weathered joint	„	0	0	3

ARCHES.

Extra only to the price of ordinary brickwork:—

Fair external in half brick rings	„ „	0	0	10
Axed in stocks	„ „	0	0	9
Rubbed and ganged jointed in putty camber or segmental	„ „	0	5	9

SUNDRIES.

Damp course in double course of slates breaking joint and bedded in Portland cement	„ „	0	0	11
Setting ordinary register grates and stoves	each	1	0	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	„	4	15	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard super	4	6
Three-quarter-inch vertical damp course	„ „	9	6
Three-quarter-inch on flats in two thicknesses	„ „	6	0
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	„ „	1	0

MASON.

York stone templates fixed	per foot cube	12	9
York stone sills fixed	„ „	22	0
Bath stone and all labour fixed	„ „	10	6
Beer stone and all labour fixed	„ „	15	0
Portland stone fixed	„ „	15	6
Chilmark stone fixed complete	„ „	13	6

SLATER.

Welsh 16 in. × 8 in. 3 in. lap. including nails	per square	70	0
Do. 20 in. × 10 in. Do. Do.	„	71	6
Do. 24 in. × 12 in. Do. Do.	„	73	6

CARPENTER AND JOINER.

Fir framed in plates	per foot cube	3	6	
Do. joists	„ „	4	0	
Do. roofs, floors and partitions	„ „	4	6	
Do. trusses	„ „	6	9	

		½"	1"	1½"	2"
Deal rough close boarding	per sq.	30/-	35/-	43/-	70/-

Flat centering for concrete floor, including struts or hangers	„	50	0	
Do. to beams	per ft. sup.	0	8	
Centre for arches	„	1	6	
Gutter boards and bearers	„	1	0	

FLOORING.		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.	—	38/-	45/-	52/-
Do. tongued and grooved	„	—	43/-	50/-	58/-
Do. matchings	„	40/-	45/-	—	—

Moulded skirtings, including backings and grounds	per ft. sup.	1/4	1/7	1/9	2/3

SASHES AND FRAMES.		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	9
Two Do. Do. Do.	„ „	2	0
Add for fitting and fixing	„ „	0	2
Deal cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares, double hung, double hung with pulleys, lines and weights, average size		3	3

DOORS.		1½"	1¾"	2"
Two-panel square framed	per ft. sup.	2/1	2/3	2/5
Four-panel Do.	„	2/4	2/6	2/9
Two-panel moulded both sides	„	2/6	2/9	2/11
Four-panel Do. Do.	„	2/9	2/11	3/2

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	12	0

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	1/7	1/8	1/11
Deal shelves and bearers	„	1/2	1/4	1/7
Add if cross-tongued	„	2d.	2d.	2d.

STAIRCASES.

	1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets	2/0	2/3	2/8	—	—
Deal strings wrot on both sides and framed	1/8	2/-	2/2	2/8	—

		s.	d.
Housings for steps and risers	each	0	11
Deal balusters, 1 in. x 1½ in.	per ft. run	0	9
Mahogany handrail, average 3 in. x 3 in.	„ „	5	6
Add if ramped	„ „	11	0
Add if wreathed	„	22	0

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/-
Sash fasteners	11½d.	Mortice locks	4/6
Casement fasteners	1/5	Patent spring hinges and letting into floor and making good	19/-
Casement stays	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	15	0
Plain compound girders	„	18	0
Do. stanchions	„	20	9
In roofwork	„	26	6

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	1/-	1/1	1/3	1/6
Ogee Do. Do.	„	1/2	1/3	1/9	2/3
Rain-water pipes with ears	„	1/3	1/10	—	—
Extra for shoes and bends	each	2/9	3/11	—	—
Do. stopped ends	„	1/1	1/4	1/9	2/6
Do. nozzles for inlets	„	2/2	2/7	3/7	4/-

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	35	6
Do. do. flats	„	34	6
Extra labour and solder in coated cesspools	each	6	0
Welt joint	per ft. run	0	4
Soldered seam	„ „	1	6
Copper nailing	„ „	0	3

		½"	¾"	1"	1½"	2"	4"
Drawn lead waste	per ft. run	10½	1/2	1/9	2/5	3/-	—
Do. service...	„	1/3	1/8	2/2	3/2	—	—
Do. soil	„	—	—	—	—	—	6/-
Bends in lead pipe	each	—	—	—	—	2/3	5/6
Soldered stop ends	„	0/7	0/11	1/3	2/-	2/6	—
Red lead joints	„	0/9	0/10	1/1	1/7	1/10	3/6
Wiped soldered joints	„	2/-	2/6	2/9	3/5	4/3	6/-
Lead traps and cleaning screws	„	—	—	—	10/-	13/-	—
Bib cocks and joints	„	6/-	9/-	13/-	—	—	—
Stop cocks and joints	„	10/6	12/6	17/6	50/-	—	—

PLASTERER.

			s.	d.
Render, float and set in	lime and hair	per yard sup.	2	0
Do. Do.	Sirapite	„ „	2	3
Do. Do.	Keen's	„ „	3	0
Add saw lathing		„ „	1	4
Add metal lathing		„ „	2	4
(Not including hangers or runners, etc., for suspended ceilings.)				
Portland cement screed		„ „	1	7
Do. plain face		„ „	3	3
Mouldings in plaster		per 1 girth	0	1½
One-and-a-half granolithic pavings		per yard sup.	4	6

GLAZIER.

21-oz. sheet plain	per foot sup.	0	6½
26-oz. Do.	„ „	0	7½
Obscured sheet	„ „	0	8
⅛-in. rolled plate	„ „	0	9
¼-in. rough rolled or cast plate	„ „	0	10
¼-in. wired cast plate	„ „	1	1

PAINTER.

Preparing and distempering, 2 coats	per yard sup.	0	7½
Knotting and priming	„ „	0	7
Plain painting, 1 coat	„ „	0	9
Do. 2 coats	„ „	1	2
Do. 3 coats	„ „	1	9
Do. 4 coats	„ „	2	4
Graining	„ „	2	3
Varnishing twice	„ „	1	9
Sizing	„ „	0	3
Flatting	„ „	0	7
Enamel	„ „	1	1
Wax polishing	per foot sup.	0	6
French polishing	„ „	1	2
Preparing for and hanging paper	per piece 2/- to	4/-	

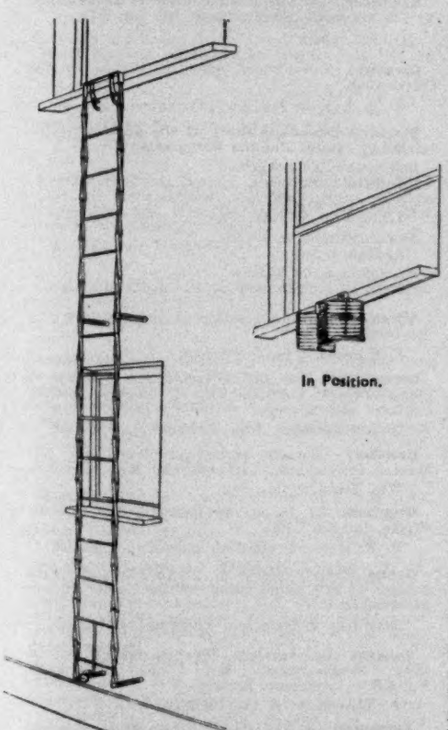
These prices apply to new buildings only. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Act, and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

NEW INVENTION

A Gravity Fire Escape.

THE J.B. Gravity Ladder Co., of Croydon, are putting on the market a ladder so designed that it may be adapted as a permanent fixture under the cill of a window, ensuring complete safety to the inmates in case of fire. The escape is suspended on two brackets, securely fixed in the wall under the window, the top of the ladder being parallel with the cill or window frame. Being made of steel, it is very strong, and is rustless and non-corrosive. Once fixed it may be forgotten until an emergency arises. No mechanism is included in its construction, and as it is actuated entirely by gravity there is nothing to get out of order, and no instructions are necessary in connection with its use.

On the window cill or close to the lower sash is an oval tablet prominently displayed and lettered in enamel with the word "Push," and all that is required in case of fire is that the occupant should open the window (an instinctive action in the circumstances), and a slight push on the tablet causes a complete and effective ladder to extend instantly to within a foot or two of the ground, enabling the person trapped in the room to descend to safety or to be assisted from below. The operation is so



In Position.

A GRAVITY FIRE ESCAPE—Extended ready for use.

rapid that not more than a second need elapse between the window being opened and means of escape provided.

A valuable feature of the invention is the provision of struts at intervals, which automatically extend as the ladder comes down, thereby providing an adequate means of keeping it well away from the wall; in practice, it is found that from the point of suspension to the bottom it is as firm as if it were in one piece—there is neither sag nor swing. As the ladder descends it describes a parabola, curving outwards to such a degree that it clears any obstruction, such as a lower cill, etc. Every part of the escape is protected against corrosion before it is assembled; it is similarly treated after it is made up, and finally is sprayed to give a smooth aluminium finish.

As this device is intended only for use in cases of emergency, and not as a ladder in constant use, it has not been thought advisable to affix a permanent means of reassembling it from its extended to its normal collapsed position under the cill. This may easily be done by attaching a cord to the bottom rung and pulling the ladder up to the window, where it is secured as before and ready for use again. The escape being standard in every part, can be supplied in any reasonable length from eleven feet (suitable for use from a first floor) upwards. It is not, of course, necessary that it should come quite down to the ground.

TRADE NEWS

The Vogue of Neon Interior Lighting.

The development of Neon lighting for interior illumination has advanced considerably in recent months, and promises to play an important part in the field of decorative lighting in the future. Broadly speaking, this style of lighting can be employed in three ways: (1) Direct, (2) Diffused through glass, and (3) Indirect. For direct lighting the General Electric Co. recommend a combination of tubes consisting of a large "Cleora" green tube with a special smaller red tube on either side. It appears that this has an extremely attractive and dignified appearance and gives a resultant light of a soft warm nature. The fact that the illumination is spread over a large area means that the surface brightness is not sufficient to cause any sensation of glare, while the overall efficiency is appreciably in excess of that which can be obtained with tungsten lamps after allowance has been made for the necessity of screening their brightness from direct view and for adding that warmth of tone which is required in many varieties of modern decorative lighting. Tubes can be supplied either in straight lengths or in curves of any desired shape.

For indirect lighting, where the necessity for keeping surface brightness low is no longer present, even higher efficiency tubes can be employed, thus enabling an indirect colour lighting system to be produced at an overall efficiency equal to or greater than present white light systems.

The General Electric Co., Ltd., announce the receipt of orders for electric lighting fittings for the undermentioned cinemas: Cranston's, Renfield-street, Glasgow; Embassy Cinema, Shawlands, Glasgow; Calton Cinema, Edinburgh; and Rothesay Cinema, Rothesay.

Import Duties Advisory Committee.

The Import Duties Advisory Committee have under review the rates of import duty on granite, dressed, polished, carved or otherwise worked (other than setts and kerbs); and on marble, on which any process other than sawing has been carried out, except tiles no side of which exceeds 2 ft. in length, mosaic cubes and chippings. They also give notice of applications for increases in the import duties on glazed wall and glazed hearth tiles, and di-sodium and tri-sodium phosphates. Any representations which interested parties may desire to make in regard to these commodities should be addressed in writing to the Secretary, Import Duties Advisory Committee, Caxton House (West Block), Tothill-street, Westminster, London, S.W.1, not later than January 23.

A Company Report.

At the annual general meeting of Messrs. Benham & Sons, Ltd., held on December 17 in London, Mr. Stanley J. Benham (managing director), who presided, said that the very great increase in orders experienced in 1934 was not reflected in the accounts for the year ending on September 30 last. The total value of the orders booked was far greater than in any previous year, and was nearly £100,000 up on last year. The largest increase had been in the central heating department, which had been, and still was, very busy. The stainless steel sink business had increased enormously during the year, and the firm were getting a great many orders for flats and private houses, the orders including the stainless steel sinks for the King's house. The firm has paid 10 per cent. on the year.

NEW COMPANIES

The particulars quoted below have been compiled by Messrs. Jordan & Sons, Ltd., Company Registration Agents, of 116 and 117, Chancery-lane, W.C.2, from the documents available at the Companies Registry.

POLEGATE DISTRICT BUILDERS' MERCHANTS AND SUPPLIES, LTD. (308,748). Registered December 30. High-street, Polegate. Builders' and timber merchants, etc. Nominal capital, £3,000.

T. & H. BARTLETT, LTD. (308,783). Registered December 31. Builders, contractors, etc. Nominal capital, £6,000. H. E. Bartlett, "Ferndale," Wivelsfield Green.

O. H. EVANS, LTD. (308,777). Registered December 31. Builder and contractor. Nominal capital, £10,000. O. H. Evans, "Ashleigh," St. Fagans-road, Fairwater, Cardiff.

GRAHAM & JESSOP (1935), LTD. (308,739). Registered December 30. Wakefield-road, Moldgreen, Huddersfield. Builders, contractors, etc. Nominal capital, £6,000.

W. PICKUP (PLASTERERS), LTD. (308,717). Registered December 28. Plasterers, etc. Nominal capital, £4,000. W. Pickup, 62, Robert-street, Patricroft.

THOMAS ELLINGTON & SON, LTD. (308,711). Registered December 28. Norfolk-street, Peterborough. Builder and builders' merchant. Nominal capital, £2,000.

W. H. SIAREY & SON, LTD. (308,516). Registered December 21. Builders and contractors, etc. Nominal capital, £4,000. W. H. Siarey, Grovelands, Chinnor.

LATCHFORD ESTATES, LTD. (308,499). Registered December 21. 138, Grey Mare-lane, Bradford, Manchester. Builders and contractors, etc. Nominal capital, £1,500.

EDGAR TOON, LTD. (308,545). Registered December 23. Plumber, heating and sanitary engineer, etc. At Bath-street. Nominal capital, £10,000. E. Toon, 28, Broadstone-avenue, Leamore, Walsall.

RAPER & Co., LTD. (308,609). Registered December 24. Builders and contractors, etc. Nominal capital, £1,000. B. Hodgson, 59, Rodenhurst-road, S.W.4.

FLEXAIRE HEATERS, LTD. (308,488). Registered December 21. 149, Lupus-street, S.W.1. Heating and general engineers, etc. Nominal capital, £5,000.

WOOLFALL & RIMMER, LTD. (308,670). Registered December 27. Paperhangers, decorators, etc. At 71, London-street, Southport. Nominal capital, £2,500.

A. J. HARRIS & SONS, LTD. (308,592). Registered December 24. 10, Hayward-road, Whetstone, N.20. Builders, etc. Nominal capital, £2,000.

PENBRIGHT ESTATES, LTD. (308,578). Registered December 23. To acquire any lands or buildings, to erect houses, etc. Nominal capital, £4,000. S. R. Bright, 28, Rowhill-road, Clapton, E.5.

DOVEDALE ESTATES, LTD. (308,599). Registered December 24. 3, Cook-street, Liverpool. General contractors and builders, etc. Nominal capital, £3,000.

A. R. SMITH, LTD. (308,641). Registered December 27. Builder and contractor. At Main-road, Breaston, Derbyshire. Nominal capital, £1,000.

BARON ESTATE CO., LTD. (308,642). Registered December 27. Builders and contractors, etc. Nominal capital, £2,100. F. C. Barrett, 100, Icknield-way, Letchworth.

MONTGOMERY KEY BUILDINGS, LTD. (308,502). Registered December 21. Builders, contractors, etc. Nominal capital, £1,000. P. S. Montgomery, 456, Seven Sisters-road, N.4.

BRYANT & TROWBRIDGE, LTD. (308,535). Registered December 23. 582-584, Christchurch-road, Boscombe, Hants. Builders and contractors. Nominal capital, £2,000.

JOHN BROWN (CONTRACTORS), LTD. (308,563). Registered December 23. 150, North-street, Brighton, 1. Public works contractors, etc. Nominal capital, £1,000.

F. A. FORDHAM & SONS, LTD. (308,546). Registered December 23. Builders and contractors, etc. Nominal capital, £1,000. F. A. Fordham, Station-road, Laindon.

NEW CINEMAS

DUDLEY.—Mr. Stanley Griffiths, 90, High-street, Stourbridge, is the architect for the erection of a cinema at the corner of North-field-road and Recreation-road, Netherton.

FERRYHILL.—Mr. E. Thompson, 12, Grey-street, Newcastle-on-Tyne, has obtained the contract for the erection of a cinema for Mr. R. Stephenson. The architect is Mr. Robert Burke, Singleton House, Northumber-land-street, Newcastle-on-Tyne.

HUCKNALL.—Mr. A. J. Thraves, F.R.I.B.A., Whitefriars House, Friar-lane, Nottingham, has prepared plans for a cinema at Hucknall. Scheme in early stage.

IPSWICH.—Messrs. Leightons (Contrac-tors), Ltd., 62, Oxford-street, W.1, and Lowestoft, have obtained the contract for the erection of a cinema in Lloyds-avenue for the Odeon Circuit. The architect is Mr. George Coles, F.R.I.B.A., 40, Craven-street, Strand, W.C.2.

IRVINE.—Mr. A. Scott Blair, of the Palace Picture House, has acquired a site in Bank-street for the erection of a cinema to seat about 1,500 persons. Plans have been pre-pared by Messrs. James McKissack and Sons, 68, West Regent-street, Glasgow. No con-tracts have been placed.

ISLINGTON.—The Odeon Theatres, Ltd., Cornhill House, Bennetts-hill, Birmingham, have acquired the "Lido" Cinema, Upper-street, N.1, and are to formulate a scheme for improvements and alterations.

LIVERPOOL.—The Bedford Cinemas (1928), Ltd., propose a cinema to be known as "The Glen" at the junction of St. Michael's-road and Aigburth-road, Aigburth, with seating accommodation for 1,760 persons. Estimated cost £40,000. The architect is Mr. A. E. Shennan, F.R.I.B.A., North House, North John-street.

LIVERPOOL.—Messrs. John Lucas and Son, Ltd., of Prescot, have obtained the con-tract for the erection of a cinema at the corner of Dovercliffe-road and Prescot-road, Old Swan, for Bedford Cinemas (1928), Ltd. Mr. A. E. Shennan, F.R.I.B.A., North House, 17, North John-street, is the archi-tect.

OXFORD-STREET.—A contract has been placed with Messrs. Pitchers, Ltd., 57, Ashburton-grove, Holloway-road, N., in con-nection with the reconstruction of Cinema House for the D. J. James Circuit. The architects are Messrs. Leslie H. Kemp and Tasker, A.R.I.B.A., 10, Great James-street, W.C.1.

STIRLING.—The Stirling Cinema and Variety Theatres, Ltd., are to erect a cinema on the site of Allan Park Lodge at the corner of Allan Park and Park-avenue, to seat 1,800.

STOCKPORT.—Messrs. Belshaw and Gomersall, Imperial-buildings, Oxford-road, Manchester, are the architects for a cinema to be erected in Wellington-road South for Mr. J. T. L. Mallard, the "Palladium" Cinema, Stockport.

UPPINGHAM.—Mr. B. J. Willson, of the "Cosy" Cinema, is to erect a cinema to seat 400 at the corner of Ayston-road, to be known as the "Rutland."

WIDNES.—Plans have been passed for the erection of a cinema in Widnes-road for the Century Pictures (Widnes), Ltd.

WOOD GREEN.—Plans presented by Mr. H. Shaw, architect, 60, Nicoll-road, Harles-den, N.W.10, for the "Palladium" Cinema, High-road, have been approved.

The Timber Development Association.

In connection with the announcement of his appointment as Public Affairs Director to the Timber Development Association in our issue for January 3, Mr. John Gloag writes as follows: "I am not a qualified architect: and not even an unqualified architect. I have had the advantage of an architectural education, but I can make no possible claim to the title of architect."

TENDERS

Communications for insertion under this heading should be addressed to "The Editor," and must reach him not later than Tuesday evening.

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modifications*.
¶ Denotes *accepted by H.M. Government Departments*.

Aberdeen.—New primary school in Seaton-place, for the E.C.:—

Carpenter—			
*J. Blake	£4,360	0	0
Steel—			
*G. Bisset & Son	694	3	0
Slater—			
*C. Maitland and Son	782	8	2
Asphalt—			
*W. Briggs & Sons, Ltd.	441	11	7
Steel windows—			
*Crittall Manufacturing Co., Ltd.	4,088	9	0
Plaster—			
*J. Scott & Son, Ltd.	3,081	7	3
Plumber—			
*G. N. Haden & Sons, Ltd.	2,305	0	0
Glazier and painter—			
*Marshall Watt & Co.	1,253	17	6
Electrical—			
*W. T. Gibb	720	0	0
Heating engineer—			
*J. F. Anderson, Ltd.	3,460	0	0
Blacksmith—			
*W. Seatter	296	5	8
Tarpave—			
*W. Tawse, Ltd.	2,385	3	6

Aberdeen.—Widening and reconstruction of the bridge over Whinhill-road, for the T.C.:—
*W. G. Anderson £8,188 3 1

Athlone.—Public abattoir, for the U.D.C.:—

J. Concannon & Sons, Athlone	£1,250	0	
R. M'Donald, Galway	1,200	0	
Peter Nolan, Athlone	1,181	10	
*J. E. Harney, Athlone	996	0	

Bath.—Alterations and decorations at 1a, Hol-loway, for the T.C.:—
*F. J. Amery & Sons, Ltd. £137 10

Belfast.—Baptist church in Ravenhill-road, for the Irish Baptist Alliance. Mr. John MacGeagh, A.R.I.B.A., architect, Belfast:—
*J. Buckley, Belfast.

Birmingham.—New infants' department to accom-modate 336 at Tinker's Farm-road, Northfield, for the E.C.:—
*J. I. Fitter, Stratford-street, Birming-ham £8,552

DON'T TENDER UNSUCCESSFULLY

SECURE CONTRACTS WITH

BELTA SCAFF

THE STEEL SCAFFOLDING CO., LTD.

Imperial House, 80, Regent St., London, W.1

Telephone: Regent 1157

Blackpool.—Omnibus station in Tyldesley-road, for the Blackpool Omnibus Stations, Ltd. Mr. C. D. Quinn, architect, Head Offices, Ribble Motor Ser-vices, Ltd., Frenchwood-avenue, Preston:—
*T. Croft & Son, Ltd., Preston.

Bournemouth.—Supply, delivery and fixing of "Guildstone" dressings for the new blocks of flats in Bath-road, for the Prudential Assurance Co., Ltd.:—
*Trollope & Colls, Ltd., London.
Dressings—*Allied Guilds, Ltd.

Bridge-Bloan.—Six houses at Adisham, ten at Petham and 16 at Littlebourne, for the R.D.C.:—
*W. H. Collingwood, Barham £9,900
(Subject to M.H. approval.)

Carlisle.—Additions at rear of English-street, for Messrs. Binns, Ltd., of Sunderland. Mr. H. I. Foxhall, L.R.I.B.A., architect, 54, Leather-street:—
*J. & R. Bell, Ltd., Carlisle.

Castleford.—Nursery school, for the West Riding E.C. Mr. H. Wormald, A.R.I.B.A., County Educa-tion Architect, Wakefield:—
*R. K. Poskitt, Beal, near Goole £3,679

Chesterfield.—24 bungalows for aged persons on the Dunston-lane site, Littlemoor, for the Corpora-tion. Mr. Clifford Bond, architect, 71a, Low Pave-ment:—
*A. Mason (Contractor), Ltd., Mans-field .....(per bungalow) £215

Clacton-on-Sea.—Reconstruction of the band pavilion in Winter Gardens, etc., for the U.D.C. Mr. W. Aiston, M.Inst.M. & Cy.E., engineer and surveyor:—
*H. Smith & Sons, 44, Pier-avenue, Clacton £31,700

Colchester.—12 2-bedroom houses at Lexden and 10 3-bedroom at Shrubben-road, for the T.C.:—
‡Direct labour £7,028

Coventry.—New Council school at Wyken, for the Corporation:—
*W. R. Lane & Son, Ltd., Coventry ... £14,660

Coventry.—Standard sheds at the slum clearance rehousing estates, for the Corporation:—
Bell Green, 206 houses—
*Corfield & Barton £2,781 0
Canley, 100 houses—
*Johnson & Newton, Ltd. 1,262 10
Freeman-street, 96 houses—
*A. Hall & Son 1,212 0
Harnall-lane, 10 houses—
*Johnson & Newton 133 15

¶Cranwell.—External services, etc., for H.M. Air Ministry:—
*F. Hossack & Sons, Sleaford.

Crewe.—Widening and reconstruction of bridge in Flagg-lane, for the T.C. Mr. L. Reeves, Borough Engineer and Surveyor:—
*Wellerman Bros., Ltd., Sheffield £7,461

Dewsbury.—Branch stores in Northgate, for Messrs. Prices, Ltd., Kirkstall-road Mills, Leeds:—
*Wm. Irwin & Co., Ltd.

Drogheda.—12 houses in Georges and Patrick-streets, for the U.D.C.:—
*P. F. Hoey, Drogheda £3,476

Dublin.—Improvements at Croke Park, including erection of new grand stand, for the Gaelic Athletic Association:—
*M'Caffrey & O'Carroll, Limerick... £41,296 16

Duneane (Co. Antrim).—Presbyterian church, for local congregation. Mr. John MacGeagh, A.R.I.B.A., architect, Belfast:—
*T. Thornbury & Co., Belfast.

Edinburgh.—Installation of 504 washtubs in houses at Lochend housing area, for the T.C. Mr. E. J. MacRae, City Architect:—
*P. Knax & Son, 31, Crighton-place, Edinburgh £2,725

Essex.—Works for the C.C.:—
Demolition of farm buildings and conversion of others at Harold Court Sanatorium—
*S. J. Davies, Romford £274
Installing hot and cold water and lavatory basins, together with drainage facilities, in the small and large wards of the isola-tion block at Oldchurch Hospital, Rom-ford—
*S. J. Davis, Romford 107
Combined treatment centre at Braintree—
*E. C. P. Brand, Braintree 3,506
Converting the existing tuberculosis block into an isolation block at Oldchurch Hospital, Romford—
*S. J. Davis, Mawneys-road, Romford 215
External and internal repair of Old Court, Springfield—
*J. Gowers, Chelmsford 330
Alterations and additions to Severalls Mental Hospital—
*Direct labour 1,848
Installation of a hot water service through-out the administrative block at Brent-wood Mental Hospital—
*Walter Cowen, Ltd. 2,669

Flint.—Children's ward to accommodate eight beds, and equipment, ward kitchen, etc., at the Flint Cottage Hospital, Cornist-road, for the Board of Management of the Flint Cottage Hospital and Nursing Association. Mr. F. A. Roberts, architect, Earl-chambers, Mold:—

*Francis Roberts & Sons, Ltd., Trevor, Wrexham.

(Estimated cost: £2,500.)

Guildford.—For works in connection with the north-east area sewerage and sewage disposal scheme, affecting the parishes of West Clandon, Send, Ripley, East and West Horsley, for the R.D.C.:—

*Watshams, Ltd., London, S.W.1 £118,757 2 6
(Council Engineer's estimate: £139,685.)

Hatfield.—Extensions to aircraft factory, for the De Havilland Aircraft Co., Ltd., Messrs. James M. Monro & Son, A.R.I.B.A., architects, Glasgow Messrs. A. L. Currie & Brown, surveyors, Glasgow:—

*Jones & Sons, Highway Works, Maidenhead.

High Wycombe.—Extension to Thames Valley Traction Co.'s depot. Messrs. Chas. Smith & Son, architects, Reading. Messrs. Cooper & Sons, surveyors, Reading:—

*Jones & Sons, Highway Works, Maidenhead.

Holywell.—118 houses on the Bryn Mawr site, for the U.D.S. Mr. D. L. Morgan, surveyor:—

†Humphreys & Roberts, Pentre Broughton, near Wrexham £35,934

Huddersfield.—Demolition of Ramsden-street Congregational Chapel and Old Guildhall, for the C.B. Mr. E. H. Ashburner, A.R.I.B.A., Borough Architect, 26, Ramsden-street:—

*S. Fearnley, 37, Francis-street, Mirfield.

Hull.—Erection of Cranwood sub-station, for the T.C.:—

*F. Bilton £357 0 4

Huntingdon.—20 houses, for the T.C.:—

*F. B. Thackray & Co. £6,055

Lancaster.—New branch stores on Scale Hall estate, for the Lancaster and District Co-operative Society, Ltd. Mr. Reg. W. Jackson, architect and surveyor, 43, Church-street:—

*T. Johnson, Lancaster.

Leeds.—Additional building work at Kirkstall power station, for the T.C.:—

*J. W. Shippen & Sons, Ltd. £28,238

Limerick.—Large provender mill at Dockside, for Messrs. Ranks (Ireland), Ltd., 104, Henry-street. Messrs. Beckett & Harrington, architects, 97, Stephen's Green, Dublin:—

*McCaffrey & O'Carroll, Ltd., 2, O'Connell-avenue, Limerick.

(Cost: £80,000.)

London.—Tenders accepted by H.M.O.W. for the week ended January 2:—

Natural History Museum—shelving—F. Troy & Co., Ltd., 194, Finchley-road, N.W.

Canterbury Telephone Exchange—erection—J. J. Clayson & Son, Ltd., Canterbury-road, Lyminge.

Manchester (Portland-street and Princess-street)—conversion of premises to form employment exchange—Fearnley & Sons, Ltd., Eccles New-road, Salford.

School desks for R.A.F.—F. Troy & Co., Ltd., 194, Finchley-road, N.W.

Coventry Head Post Office and Telephone Exchange—extensions—W. H. Jones & Son, Ltd., Lockhurst-lane, Coventry.

London.—The following works contracts have been placed by the War Office during the period ended January 2:—

Aldershot—men's barracks, M.T. vehicle shed—Geo. Kemp, Stroud & Co., Ltd., Aldershot.

Woking—Inkerman Barracks, sanitary annexes to married soldiers' quarters—H. T. Hill & Son, Cove.

Aldershot—Stanhope Lines, M.T. garages—J. B. Edwards & Co. (Whyteleafe), Ltd., London.

Larkhill—regimental institute, etc.—James & Crockerell, Durrington.

Twickenham—Kneller Hall Royal Military School of Music, internal reconstruction—E. J. Logan, London.

London.—Installation of electric light on Lewisham portion of the Brockley housing estate, for the Deptford B.C.:—

Keating & Miskin, Ltd.	£1,123 3 0
South Metropolitan Electric Light & Power Co., Ltd.	817 10 4
Read & Partners, Ltd.	784 2 2
General Electrical Maintenance Co.	659 2 4
J. H. Plant, Ltd.	578 7 0
Kirkdale Electrical Co.	574 8 0
*Pruden & Pope	540 16 8

Leyton.—Improvements to the electric lighting in various schools, for the E.C.:—

	Farmer-road infants' school.	Mayville-road infants' school.	Davies-lane infants' school.	Church-road infants' school.	Norlington-road infants' school.	Goodall-road infants' school.
W. S. Barrett	£630 14	£659 12	£593 9	£731 6	£671 0	£594 19
W. J. Clemens	531 16	665 14	—	—	—	—
F. J. Coxhead	425 0	—	—	—	495 0	—
J. A. Dumayne & Co.	460 0	560 0	560 0	700 0	560 0	530 0
S. C. Grover	393 0	479 0	434 0	543 0	458 0	436 0
H. C. Horswill, Ltd.	506 0	580 0	498 0	670 0	590 0	446 0
A. Hull	—	—	474 0	—	—	—
Kind & Co.	—	570 0	480 0	—	—	—
Lees of Enfield, Ltd.	514 0	589 0	540 0	580 0	585 0	541 0
J. & R. Rooff, Ltd.	496 0	596 0	555 0	750 0	602 0	590 0
E. A. Russell, Ltd.	679 0	776 0	714 0	954 0	775 0	709 0
Herbert H. Starke	607 0	666 0	—	—	689 0	—
A. E. Symes, Ltd.	560 0	617 0	550 0	689 0	635 0	496 0
Arthur Webb	464 0	568 0	—	—	556 0	—

Long Eaton.—12 houses in Towle-street and Arnold-avenue, Old Sawley, for the U.D.C. Mr. H. Raven, surveyor:—

*F. Perks & Son, Ltd., Bridge-street, Long Eaton £3,942

Manchester.—Provision and erection of sub-station buildings in (*a*) Brook-street, Chorlton-upon-Medlock; (*b*) City-road, Hulme; (*c*) Midland-street, Ardwick, and Grangethorpe-drive, Burnage; and (*d*) Lewis-road, Droylsden, for the T.C. Mr. H. C. Lamb, M.I.E.E., electrical engineer and manager:—

(*a*)—
Builders—*J. H. Billings & Co.
Artificial stone—*Stuart's Granolithic Co., Ltd.
Asphalter—*R. H. Lord & Son, Ltd.
Carpenter and joiner—*Campbell & Armstrong.
Smith and ironfounder—*C. C. Dunkerley & Co., Ltd.
Plumber and glazier—*J. Turton & Son.
Painter—*C. Bell, Ltd.
(*b*)—
Builders—*W. Maior & Co. (Manchester), Ltd.
Artificial stone—*Concrete Unit Co., Ltd.
Asphalter—*R. H. Lord & Son, Ltd.
Steelwork—*W. Neill (St. Helens), Ltd., St. Helens Junction.
Painter—*J. Gibbons & Son.
(*c*)—
Builders—*J. H. Billings & Co., Ltd.
Artificial stone—*Concrete Unit Co., Ltd.
Roof tiler—*Manchester Slate Co.
Carpenter and joiner—Campbell & Armstrong.
Plumber and glazier—*A. Tinker.
Painter—*J. Ferguson & Co., Salford.
(*d*)—
Builders—*Moston Brick & Building Co., Ltd.
Roof tiler—*Beaumont's, Ltd.
Painter—*A. Hogg, Ltd.
(Remainder of Manchester.)

Middleton.—35 houses on two sites at Boarshaw, for the Corporation. Mr. J. Pollard, L.R.I.B.A., Borough Architect:—

*J. Hobson & Sons, Ltd., Nottingham.

Middlesbrough.—Connnecting corridor between old building and new extension at the maternity home in Park-road North, for the T.C. Mr. S. E. Burgess, Borough Engineer:—

*S. Coates, Ltd., North Ormesby, Middlesbrough.

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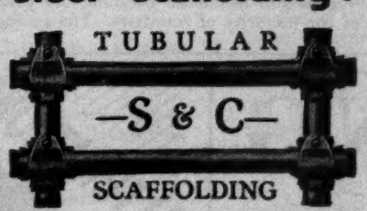

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Newcastle-on-Tyne.—Additions to factory and office premises in City-road, for Messrs. T. Hedley & Co. Plans by staff architect:—

Building work—*Stephen Easten, Ltd., Milburn House, Newcastle.
Steelwork—*J. Booth & Sons, Bolton.

Newcastle-on-Tyne.—Reinforced concrete grain silo in connection with the £400,000 flour mills and silos at the quay extension, for Messrs. Spillers, Ltd., 40, St. Mary Axe, E.C.3. Dr. Oscar Faber, M.Inst.C.E., Romney House, Marsham-street, S.W.1:—

*Peter Lind & Co., Ltd., 2, Central-buildings, S.W.1.

Northampton.—Works on the new public baths, for the C.B.:—

Heating and boilers—
*Brightside Engineering Co., Birmingham £1,842 0
Turkish bath heating—
*Royles, Ltd., Manchester 164 0
Electrical installation—
*Grensells, Kettering 1,566 6

Nottingham.—30 houses in Westdale-lane, Carlton, for the Netherfield Co-operative Society, Victoria-road, Netherfield. Messrs. Bright & Thoms, architects, 9, St. Peter's Church-walk:—

*H. Loach & Son, Carlton, Nottingham.

Preston.—New chimneys at factories at Preston and Greenfield (North Wales), for Messrs. Courtaulds, Ltd., of Coventry:—

*P. C. Richardson & Co., Middlesbrough £40,000

Rothwell.—30 houses, for the U.D.C.:—

*Ramsden & Rhodes, Ltd., Wakefield £9,069 1 6

St. Helens.—22 1-bedroom type bungalows and 28 non-parlour type houses on Sorogold-street site, for the T.C. Mr. A. P. Statham, Borough Engineer:—

*S. R. Welding, St. Helens Corporation Housing (Direct Labour) Dept., 7, George-street, St. Helens.

St. Helens.—Demolition of retort house, retort bench and other plant, for the T.C. Mr. F. E Ward, Gas Engineer:—

*George Cohen, Sons & Co., Ltd., 600, Commercial-road, London.

Salford.—Precast floors in 292 flats in Eccles New-road, Weaste, for the T.C. Col. E. B. Martin, Borough Engineer:—

*Rapid Precast Floors, Manchester £15,943

Sheffield.—Installation of panel invisible warming system at Lodge Moor Hospital extension (Scheme No. 4), for the T.C. Mr. W. George Davies, F.R.I.B.A., City Architect:—

*Rosser & Russell, Ltd., Leeds £2,329

Sheffield.—Depot on the Arbourthorne estate, for the T.C. Mr. W. George Davies, City Architect:—

*Direct Labour Department £1,750

Sheffield.—376 non-parlour type houses on the Shirecliffe estate building scheme No. 4, for the Corporation. Mr. W. George Davies, F.R.I.B.A., City Architect:—

*W. Malthouse, Ltd., Sheffield £116,999

Sheffield.—Branch banking premises, for the Yorkshire Penny Bank, Ltd.:—

*Wm. Nicholson & Son (Leeds), Ltd.

Southport.—Structural alterations to school premises in Talbot-street, for the E.C. Mr. A. E. Jackson, Borough Surveyor:—

*Buck & Hodson, Southport £330

Stafford.—Rewiring electric light and power installations at Stafford Technical College and Education Offices, for the Staffordshire E.C.:—

*Birch & Evans, Walsall £477

Sunderland.—Garage, showrooms and petrol station in Durham-road, for Mr. Joseph Brown. Messrs. G. T. Brown & Son, architects, Fawcett-street:—

*D. & J. Ranken, Stockton-road, Sunderland.

Sunderland.—44 two-roomed houses on the Utterdene site, for the T.C.:—

*H. Thompson, Castletown, Sunderland £9,308

Warrington.—Workshops on Bewsey and Westy-lane housing sites, for the T.C. Mr. J. Y. Hughes, Borough Surveyor:—

*Harry Fairclough, Warrington.

(Estimated cost £1,050.)

Warrington.—For (a) electric wiring of 136 houses, various types, on the Alder-lane estate; (b) external painting 62 houses, Manchester-road, 132 houses in Kingsway and Princes-avenue, and 216 houses, on the Loushers-lane site, and (c) external painting 58 houses on Salisbury-street, and 73 houses Park-avenue sites, for the T.C.:—

(a) *W. E. Kidd, Warrington.
(b)*B. Jones & Son, Liverpool.
(c) *Winstanley & Co., Warrington.

Whickham.—New Sunday school in Fellside-road, for the Methodist Church Authorities. Messrs. S. J. Stephenson & Gillis, architects, 2, Saville-place, Newcastle-on-Tyne:—

*Shield Bros., Ltd., Swalwell.

(Cost: £700.)

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Widnes.—156 dwelling houses on the Lugsdale-road rehousing estate, for the T.C. Mr. James Holt, Borough Engineer and Surveyor:—

J. Gerrard & Sons, Ltd., Manchester	£53,596
Brisco (Builders), Ltd., Liverpool	53,364
Borough Engineer, Widnes	49,972
Eadie & Co., Wolverhampton	49,960
J. W. Lee, Ltd., Chorley	49,840
James Hobson & Sons, Ltd., Nottingham	48,988
*Leyland Construction Co., Ltd., Leyland	48,735

Whickham.—74 houses on the O'd Sunniside housing site, for the U.D.C. Mr. Thomas Fenbow, surveyor:—

*Direct Labour £23,368 10

Wimbledon.—Sub-station on the Parkfield estate, New Malden, for the C.B.:—

*Alex. Thomson (London), Ltd. £229

Wirksworth.—For (a) one pair of 4-bedroom type houses, (b) four pairs of 3-bedroom type houses, and (c) one pair of 2-bedroom type houses on the Wash Green housing site, for the U.D.C. Mr. Chas. Frobisher, surveyor:—

*Bowmer & Kirkland, Heage, near Derby.
(a) £881 17s. (b) £2,674 12s. (c) £625 6s. 6d.

Wrexham.—36 houses in Aston-grove, for the T.C.:—

*G. F. Sumner, Wrexham £13,788

Bath Replanning Scheme.

At a ratepayers' meeting on December 30, opponents of the Bath Parliamentary Bill, which involves an expenditure of £1,000,000, defeated by large majorities four resolutions confirming the various sections of the bill. The resolutions having been defeated, the City Council will now have to review the whole position.

British Works Management Association.

Sir Valentine Crittall, Kt., J.P., chairman of the Crittall Manufacturing Co., Ltd., has accepted an appointment as President of the British Works Management Association, in succession to Mr. E. J. Fox, managing director of the Stanton Ironworks Co., Ltd. The Vice-Presidents of the Association are Lord Amulree, G.B.E., Sir Steven Bilsland, Bart., Mr. Frank Hodges, J.P., Mr. E. S. Byng, M.I.E.E., and Mr. Sam Mavor.

Identification of Pipes, Conduits, Ducts and Cables in Buildings.

The British Standards Institution has already issued, among its many publications, "British Standard Identification Colour Schemes for Engine Room Piping" (B.S.S. 3011), "Colours for Gas Cylinders" (B.S.S. 349), and "Identification of Chemical Pipe Lines" (B.S.S. 457). This series of British Standard schemes has now been augmented by the addition of a British Standard Specification (B.S.S. 617) for the "Identification of Pipes, Conduits, Ducts and Cables in Buildings," drawn up at the request of the Royal Institute of British Architects. The publication represents, as far as possible, the practice of the majority of countries. The scheme comprises a standard colour and a specially shaped identification plate for each service, appropriately stamped with a distinguishing lettering to denote the classes of the service; the colours used are selected from those laid down in the "British Standard Schedule of Colours" (B.S.S. 381). The specification is intended to apply to buildings other than those used for industrial processes. The term "building" has not, however, been qualified, as it is hoped that where such schemes are adopted in factories or industries other than the chemical industry the provisions of the specification may be taken as a basis. This system of identification is to be regarded as supplementary to any rules for the public safety laid down by the Home Office or the Electricity Commissioners and to any regulations for the electrical equipment of buildings issued by the Institution of Electrical Engineers. Copies of this Specification (No. 617-1935) may be obtained from the Publications Department, British Standards Institution, 28, Victoria-street, London, S.W.1, price 2s. 2d. post free.

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